The Builder.

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Architecture at the Royal Academy.

THE pictures of architecture form an effective collection. We say advisedly "pictures of architecture," since plans are even less prominent than usual this year, though some of the Royal Academy architects, we are glad to see, are setting a good example in this respect—an example which one hopes may be followed by others next year.

Of the architects who are members of the Academy, two do not exhibit—Professor Aitchison and Mr. Norman Shaw. Taking the others in alphabetical order, we find Mr. Belcher exhibiting two sections, with elevations of the opposite wall, of the grand staircase in his design for the Palace of Peace (1501). The Palace of Peace, as we shall see further on, supplies a good deal of matter for the walls of the Architectural Room this year. Mr. Belcher's staircase design suffers very much indeed from the want of a plan, though the disposition of the staircase can be made out by considering the two sections together. It appears to be a staircase with a barrel vault divided into compartments by ribs springing from an order of pilasters on the upper portion of the wall, the portions of the ceiling arch being treated in each as semicircular lunettes, with further decoration in the upper part of the vault, and a cupola over the first landing of the staircase, decorated in a similar style to the vault. The lines give the impression of the decoration being dependent on colour; but as it is merely a line drawing one cannot form much opinion of the effect. Mr. Belcher also shows the longitudinal section of the Palace of Peace design (1510), but again there is no plan, and this is a very unsatisfactory way of illustrating a design. But he also exhibits, what is of much more immediate interest, the design for the façade of the principal entrance to the intended Franco-British Exhibition of next year (1511). This has (quite suitably) a good deal of the character we have been used to in French exhibition pavilions, especially in the side blocks with their rusticated angles and the flags flying over them. The centre portion is divided by columns into three bays, the centre one the wider, in which are metal gates well treated. Above this erection is an octagonal lantern carried only on a single column at each angle, which is very nice and graceful in itself, but is rather crushed by the mass of heavy scroll-work and the finial lantern at the top, which seems to us too heavy for the immediate substructure.

Mr. Blomfield exhibits a fine pen line drawing of the exterior perspective of the "United University Club" (1470), which nevertheless does not make the building look as well as it does in reality; it is a kind of architecture that is better done justice to by a brush drawing with broad surface shading, or by a photograph, than by a line drawing. Plans of the ground floor and first floor are added in the corners, but the names of the rooms are not given, which renders the plans of less use than they might otherwise have been, though one can guess pretty well their general use as parts of a club. Considering the stately and dignified character of the exterior, one of the best pieces of modern classic in London, the arrangement of the plan seems curiously naïve and ineffective, architecturally speaking, though it may answer well enough for the practical purposes of the club. Mr. Blomfield also exhibits a line perspective drawing of an interesting old house to which he has been making additions, "Wyphurst Cranleigh" (1464); we presume the black portions of the plan are the additions. The new portions are rendered architecturally distinct from the old by the addition of a certain amount of half-timber work, which is quite right; an addition should appear as an addition, unless in cases where an originally symmetrical design has to be completed. From the indications on the plan we presume that the lavatory and water-closet in the neighbourhood of the billiard-room form a part of the alteration; if so, we can only express our astonishment at the arrangement by which the water-closet door is made to form the close of the vista at the end of a corridor about 50 ft. long; an arrangement which is really hardly decent, and in this case quite unnecessary; the water-closet could quite easily have been entered through the lavatory instead of directly from the passage; that would be the proper and natural arrangement. We have had occasion to

remark under the head of "Books" this week, in noticing the artistic production called "Meister der Innen-Kunst," as to the curious way in which architects who profess to be specially artistic seem to neglect or ignore the conditions of refinement in the planning of a modern house; but this is a still more strange example.

Mr. Bodley exhibits two large water-colour interiors of churches, one of St. Chad's, Burton-on-Trent (1572), the other of the interior of the English Church at Florence (1575). The former, which is inscribed "H. Stevens delt.," is a beautiful water-colour and highly creditable to the draughtsman. The building is in a simple and correct style of Decorated Gothic, with moulded caps only and no carving; the ceiling is a panelled barrel vault, divided by raised mouldings with conventional carved flowers over the intersections; the chancel ceiling is treated on the same lines but with more elaboration. Neither in this nor in the English church at Florence is there any chancel arch. The latter church exhibits the same severe type of Gothic as the other one, but with piers of marble instead of stone; there is a rood-screen decorated with a good deal of gilding, and a rood-beam and rood above similarly decorated; all this is in excellent mediæval style, and (in its way) could not be done better, and for an English church at Florence it may be suitable to introduce English Gothic, and thus let the congregation of English visitors find themselves, as it were, at home.

Mr. T. G. Jackson exhibits five drawings, the most interesting of which, perhaps, is the Temple Memorial Speech Room for Rugby, as proposed (1461), of which we give an illustration in this number. A plan is given, as will be seen; we are not quite sufficiently up in the manipulation of the proceedings on Speech Day at Rugby to understand the exact *motif* of the plan or the reason for the side passages connecting what we may call the nave with the transepts, but we presume they arise out of the arrangement of the function. The design has that semi-domestic character which is proper to a school building; the turret with its leaded cupola looks very well, rising from the middle of the pillared and balustraded porch. The interior of the new chapel for Hertford College, Oxford (1556), has that mingling of Renaissance detail with mediæval general effect and feeling, which is rather a "note" of Oxford; the only thing we do not quite like in it is the scroll-work on the under-sides of the struts in the roof. They may be intended to be worked out of the solid; but they have rather the appearance of being planted on. Two others of Mr. Jackson's exhibits are the exterior and interior views of St. Augustine's Mission Church, North Town, Aldershot (1551, 1553); the exterior is a quiet church in Gothic style, with one long roof ridge broken by a small bell-cot, and with a dormer window clearstory to the nave; the interior presents the unusual spectacle (in modern times) of aisles with posts of timber in place of stone piers; at the upper part of these are curved struts branching out three ways, those to east and west forming a kind of reminiscence of a nave arcade without imitating stone construction in any way; the struts projecting towards the centre of the church carry a panelled soffit which runs the whole length of the nave, from the moulded outer rib of which springs a pointed plastered ceiling slightly decorated with conventional floral patterns. This ceiling runs through, but the position of the chancel arch is marked by a kind of half suggestion of an arch in timber, on the same principle as the nave arcade, with curved struts supporting a cross beam, above which the space is filled with timber uprights and panelling. It is altogether a very interesting experiment in the interior treatment of a church. Mr. Jackson's remaining drawing is an exterior view and plan for additions to Aldershot Church (1553), consisting of a new west entrance and windows and vestry, new north aisle and (we regret to say) organ chamber; the new portion is treated in late Gothic, with some diversification of the wall surface, apparently with flint and brickwork; the characteristic existing tower is preserved intact.

Sir Aston Webb's principal exhibit, a large drawing of the detail of the centre portion of the Victoria and Albert Museum (1627), is illustrated in our present issue; a very interesting drawing, made properly intelligible with plans and a section, of the centre portion of the immense building which he has been carrying out. The scale of the building is so large that it is almost unavoidable that a good deal of detail should be introduced to cover up the great spaces of the walls; it may appear too much in the drawing, but the building would have looked bare with less. The Principal Entrance, University of Birmingham (1619) exhibited, like the main elevation of the University buildings (1626), under the joint names of Sir Aston Webb and Mr. Ingress Bell, is a very bold piece of work, with a very rich centre composed of a triple doorway with a panel of sculpture over each doorway, a large round-arched traceried window above, with heraldic decorations in the spandrels, flanked on each side by a square slightly battering tower of solid masonry, unbroken on the face save by one little window near the plinth, and crowned with leaded cupolas, the whole forming a powerful piece of architectural contrast. The long elevation of the University front to University-road (1626) with an immense machicolated tower behind the centre, is shown on a drawing bearing a small block plan in one corner, from which we see that the building is in the shape of a semicircle with a straight piece of building joining the ends of the semicircle and leaving an open court in the centre. The long front, necessarily shown to a very small scale, is treated with great breadth, the same three stories of windows (those on the ground floor with round-arched heads) being continued right along the front, only broken by raised pavilions at intervals. There has been some confusion with the scales put on the drawing, as according to the scale to the elevation the front is about 950 ft. long, and according to the block plan scale it is under 400. As the elevation scale gives about 43 ft. for the combined height of the three stories, which is about what one would expect to be the height of stories in buildings of this class, we presume it is correct and the plan scale is wrong.

We may now glance at some of the other designs for public buildings which are exhibited, taking them in the order of hanging. Messrs. Russell & Cooper's "St. Pancras Central Library" (1455) is a one-story building with a large columnar order, at the meeting of two streets and with the main entrance at the angle (no plan). It looks solid and reposeful, and suggests a library, though the large attic seems rather a useless piece of conventional architectural addition: quite "in order" no doubt, according to classic precedent, but it is a pity that this kind of costly convention should not be broken through. Mr. Benston Hatchard exhibits a large drawing of a "Proposed design for Government Buildings in a Tropical Climate" (1479), which we may presume to be a suggestion only for the application of an Oriental style of treatment to a possible Government building in an Eastern country. The large circular stair towers at the extreme angles, crowned with domes of Oriental type, are effective: the ponderous tower in the centre, with battering lines and very ugly cornice, may be Oriental but is not beautiful; and as a whole the design is rather confused and over-accentuated, it does not give the best qualities which might have been suggested by Oriental architecture. The projecting red bands introduced in parts of the design (we suppose of brick) have an odd and not very satisfactory effect. The whole is a spirited attempt, however, at something new in a building for European administration in an Eastern country.

Designs for the Peace Palace are (not unnaturally) rather abundant: after having spent time and money on an ill-managed competition, the one satisfaction competing architects can get from it lies in whatever credit they can obtain by the public exhibition of their designs. Mr. J. C. Carter's design, of which the elevation of the central portion is shown (1489), is not however a kind of thing that would have been suitable in point of style and treatment. Mr. J. F. Groll's design (1495), shown in a finely-executed perspective drawing, looks like an inspiration taken from the late Mr. Waterhouse—a very elaborate building with many small turrets, etc., looking, in the coloured drawing, like terra-cotta, with a grey granite plinth. That also is not broad and reposeful enough for the occasion, though it is a credit to its author in a general way. Mr. Adshead's pleasing and sober classic design, which was illustrated in our issue of August 4 of last year, would have been done more justice to if shown from a lower point of sight and without showing the roofs: the drawing shows it from a point of view from which the building could never have been seen, and which is not the most favourable to a design which, though quiet, has a great deal of merit. Mr. H. D. Pearson's design (1502) is still more quiet, and suggests a town hall for a provincial town rather than a building of cosmopolitan significance and interest; in itself it is a very nice front in very good taste. Messrs. Page & Halley's design (1513) avoids at all events the

mistake of being too modest in style for the occasion; it is a very super-magnificent mass of classic architecture with a large Corinthian columned portico, and an applied colonnade of un-fluted columns at the side. The centre mass from which the dome rises is powerfully treated, but as a whole the design represents little more than the commonplaces of modern classic on a large and ambitious scale. The design by Mr. Clifford Ewen (1514) has much more of original interest in its treatment and detail; like most or all of the others, it has no plan, but we can see that it is based on a ⊓ shape in front, the two wings projecting, and the principal entrance, dominated by a cupola, being placed in the centre of the connecting line of frontage. This design perhaps looks rather municipal than cosmopolitan, but it is in good taste and shows considerable originality of treatment. Mr. A. W. S. Cross's design (1525), which we noticed particularly in reviewing the original competition, has a great deal of interest. Then there is the design by Messrs. Wills & Anderson (published in our issue of July 21, 1906), in which the importance of the occasion is fully realised in the architectural treatment; the great square mass of building rising in the centre is a feature like nothing else that we remember, and gives an importance and significance to the design which would at once have stamped it as a building for some great and unusual purpose. Lastly, we have Mr. H. T. Hare's design (1521: illustrated in our issue June 2, 1906), the best of those exhibited, and which, as we said at the time, taking plan and design in conjunction, appeared to us to be the best design in the competition, and at all events ought to have been among the premiated ones. It is a pity that the plan is not given, for the plan was one of its greatest recommendations: but what strikes us in the general design, as shown in this perspective view, is that the whole building, with its decorative and sculptural additions, has the appearance of being *modelled*, as a sculptor would model his work, and not consisting merely of correct classic details correctly put together. This quality of modelling is one of those which are often sadly wanting in modern classic architecture, and young students should notice this in Mr. Hare's design and note how it is achieved.

There are a good many more designs of buildings of the nature of public architecture, but we have not space for further remarks this week.

GRAMMAR SCHOOL, ORMSKIRK.—Further extensions are being made to the Ormskirk Grammar School, at a total cost of 2,450*l*. The school, when completed, will accommodate 223 students in nine classrooms, and is also provided with central hall, library, cookery, art-room, laboratory and lecture-room, and manual classroom. The architect is Mr. Frank Rimmington (Liverpool), and the contract is being carried out by Mr. Jas. Whittle, of Ormskirk.

ST. CUTHBERT'S, HEBBURN-ON-TYNE.—Thirty-five years ago the nave and chancel arch of St. Cuthbert's Church were built and consecrated, the chancel arch being bricked up to await the addition of a chancel at a later date. The time has now arrived for the completion of the intention of the founder, the late Mr. Ralph Carr-Ellison. The vicar and the committee in charge of the scheme have let the contract to Mr. J. M. Wright, of Sunderland, and have made arrangements with the architect, Mr. M. Temple Wilson, Alnwick, for the immediate commencement of the new works.

REINFORCED CONCRETE.

SO short a time has elapsed since the appointment by the Council of the Institute of Architects of a Committee on Reinforced Concrete that it can scarcely be expected that their Provisional Report, which we understand has been sent in to the Council, will be a very exhaustive or authoritative document. To obtain first-hand the necessary data for dealing thus with the subject would involve long and costly series of investigations, such as those completed by the Commission du Ciment Armé appointed by the French Government, and those now in progress by the Joint Committee inaugurated by the American Society of Civil Engineers.

Moreover it is a very unfortunate thing that the praiseworthy enterprise of the Institute should have been boycotted by the Institutions of Civil and Mechanical Engineers. Not that we think the appointment of representatives by those bodies would have added materially to the value of the Report, for we doubt whether they could have sent engineers more competent to deal with the subject than Messrs. Unwin, Colson, Walmisley, Marsh, Collins, and Cockrill, who were already members of the Committee. But it would certainly have looked better if the two leading engineering institutions had participated in the good work. One other deficiency in the constitution of the Committee is that while including well-known architects, civil engineers, military engineers, and building contractors taking an intelligent interest in reinforced concrete, not one of these gentlemen has had any practical experience—or, at any rate, not sufficient to qualify him as a practical expert—in the design of reinforced concrete structures. The constitution of the French Commission was very different in this particular, and the American Committee includes engineers able to speak with the authority due to personal experience.

In making these remarks we do not wish to be thought ungracious to those who have given their time to work of most valuable character. But we cannot admit that the Committee fully or adequately represents British experience with regard to the new structural material, and we should like even at this stage to see it strengthened by the addition of a few practical designers and practical constructors in this special material.

For the purpose of a Provisional Report, however, we are quite sure that the present members are quite competent to draw from their undoubted experience of Portland cement, concrete, steel, and constructional work generally, many valuable hints for the benefit of architects and builders, and to supplement these by many others, equally useful, collated from the already voluminous literature of concrete-steel. In their final Report we shall probably have the results of original research, which will be still more appreciated.

We cannot say, of course, what may be the contents of the forthcoming document, but we shall probably not be far wrong in assuming that it will present various carefully-considered instructions for the guidance of designers and contractors, and will deal also with methods of calculation for simple structures. Among the points that we hope will be specially emphasised are the absolute necessity for the best materials and workmanship, sound design, and unceasing vigilance on the part of foremen and clerks of works, and the great risk inseparable from the employment of workmen unskilled in this very special branch of construction.

So far as materials are concerned, Portland cement of the best quality only and clean sharp sand will certainly be recommended, and we hope to find some salutary words of caution relative to the injudicious use of cinder as aggregate. Although useful in its proper place, no form of cinder should be employed as a constituent of reinforced concrete, a fact which is fully recognised by German building laws.

As for steel applied in the form of reinforcement there can be little difficulty in making satisfactory recommendations, and we are justified in the belief that the Committee will emphasise the desirability of making the yield point, rather than ultimate tensile resistance, the true criterion for working stresses. We trust, however, that they will not support the practice, advocated by some theorists, of coating the bars with cement grout. This is quite unnecessary, for a bar very slightly rusted on the surface is better than perfectly clean metal, as the rust enters into chemical combination with the cement, leaving the steel perfectly clean, and the new compound has the effect of increasing adhesion. Moreover the coating of grout is very liable to scale off in actual practice.

Other points in connexion with reinforcement are the importance of splitting the ends of all bars, the avoidance of weeds, the provision of adequate shear reinforcement, the necessity for bending up the longitudinal bars so as to provide for tension near the upper parts of members acting as continuous beams; and, finally, the danger of displacement which often happens when the reinforcement is not properly fixed before the deposition of the concrete.

No doubt the Committee will insist upon the utmost care in the mixing and handling of concrete, the use of aggregate small enough to pass between the bars of the reinforcement, and the deposition of concrete immediately after it has been mixed so as to avoid the risk of "killing" the cement. They will also, it may be hoped, give some definite information as to the proper consistency of concrete, this being a point upon which somewhat vague ideas exist in the minds of the inexperienced.

If the Report extends to methods of calculation, those seeking for guidance will expect to have a complete range of formulæ for the design of beams, not merely beams with tension reinforcement only as given in so many text-books, but beams with tension, compression, and shear reinforcement, and with specially-designed reinforcement for continuous girder action. Rules for purely elementary beams are of little use in practice, and even complete rules for beams alone are not much better if they do not also teach the designer how to construct a floor comprising beams and slabs working

together. We look forward for satisfactory and really practical treatment of this matter, in case it should be taken up at all, our confidence being justified by the names of some three or four able theoretical writers who are on the Committee. Similarly, it may be trusted that if any column formulæ are included the Committee will not be content with the irrational type of equation, which, totally ignoring the ratio of length to least diameter, gives perfectly uniform loads for all values of the ratio up to 18 or 20.

In due time we shall know how far the foregoing and other important points are touched upon in the new Report, which we have no doubt will contain much in the way of sound and useful information, and serve the purpose of a forerunner to the more elaborate Report embodying the results of further investigations.

NOTES.

London Suburbs.

THE Association of Municipal Corporations are quite right in condemning the haphazard manner in which new districts around London are being developed. New suburbs are being created without method or plan, and, for the most part, without the redeeming touch of the architect's hand. Country lanes, open fields, private parks, pleasure grounds, and gardens are giving place to dreary and fearsome streets. Hedges, trees, and shrubs are ruthlessly destroyed simply with the object of crowding the maximum number of houses on the minimum area of land. To the average speculative builder, trees that have taken centuries to reach perfection are of no account, and are cut down whether they are in the way or not of his barrack-like houses. All around London, and even in semi-rural districts where land is cheap, the builder insists on running up long rows of structures, consisting simply of two rectilinear walls covered with a roof and divided at regular intervals into compartments, which are supposed to be, or at any rate are termed, houses. In some places, it is true, we find semi-detached and detached villas bearing evident traces of architectural design, but these are mere oases in the rapidly-growing desert. Notwithstanding their condemnation of the way in which Greater London is being ruined, the Association of Municipal Corporations merely propose, in the resolution passed last week, that the planning of new suburbs should be relegated to the Traffic Board. We have no such body, and perhaps may not have one for years to come. A more practical resolution would have been one urging upon the borough and other councils the necessity for dealing at once with an evil whose consequences are daily becoming more and more serious. It is simply childish to suggest that a non-existent board of traffic experts should undertake duties that can only be performed satisfactorily by local authorities themselves, with the aid of competent architectural advisers.

Water Supplies in the City.

CONSIDERING how heavily many establishments in the City of London have to pay for water which they cannot possibly consume, we wonder that the owners do not more largely avail themselves of the undoubted right to establish supplies of their own. In our issue of January 9 1904, we gave particulars of the artesian well and pumping plant installed at Salisbury House, Finsbury-circus, whereby the owners have been able to save some 400*l.* per annum on the amount of 800*l.* per annum previously paid to the New River Company. A very similar installation has recently been made in Mansion House Chambers. The well passes through the Woolwich and Reading beds into the chalk, and yields water of excellent quality, which is delivered at the rate of 1,000 gallons per hour into a large reservoir in the basement, and pumped thence to storage tanks on the roof. There are hundreds of business premises where the actual consumption of water is purely nominal, while heavy "domestic supply" rates have to be paid, and in these the cost of tube wells and small electrically-driven pumps would be amply repaid in a comparatively short time. When the increased rates of the Metropolitan Water Board come into force there will be still better reason for the adoption of independent supplies.

What is a "Workshop"?

FROM time to time we have commented on cases which have turned upon what is a "factory" within the Factory and Workshop Act, 1901, and now a case, Hoare *v.* Robert Green, Ltd., has been decided upon what is a "workshop." The defendants, who were retail florists, were summoned for not fixing up an abstract of the Act on their premises. The defendants employed ten florists' assistants and eight girls, who were beginners, and in a room behind the shop, when not serving customers, these women made up crosses and wreaths. The frames were not made on the premises, but the flowers were arranged on the frames, and the frames were sometimes covered with indiarubber tubing. The magistrate held this not to be a "workshop," but the Divisional Court reversed this finding, holding, under sect. 149, that the premises were a workshop, manual labour being exercised by way of trade or for purposes of gain in making articles and adapting them for sale. The Court appears to have held that the making of these wreaths and crosses was not merely incidental to the business done in the shop, but the line drawn seems to be a fine one, and shopkeepers will have carefully to consider their position.

A Light Case.

THE case of Ankerson *v.* Connelly, commented upon by us August 4, 1906, has been carried to the Court of Appeal. The defendant had purchased some old houses and pulled them down, erecting others on the site. At the back of one of these houses was a living-room and passage looking on to a yard lighted by a window and glass panel, ancient lights. The yard had a penthouse formed by roofing over the end of the yard and part of the sides, but there was an open space facing the window and glass panel. In the wall separating this house from that of the plaintiff was a small window, an ancient light, which lighted the penthouse. In re-erecting the houses the defendant entirely covered in the yards, and the yard as well as the two windows in the house were then lighted by the old window in the separating wall and two other openings made in this wall. The plaintiff then by a hoarding obscured the three openings in this wall, and the defendant pulled down the hoarding. The plaintiff applied for a declaration that the defendant was entitled to no easement over the plaintiff's land, and for an injunction and damages. The Court of Appeal affirmed the judgment in the Court below, granting the declaration, the defendant having increased the burden on the plaintiff's land in such a way that by his alteration in the structure it was impossible to distinguish between the amount of light he was entitled to by reason of the easement and that to which he had no title at all. Since the decision of the House of Lords in Colls *v.* Home and Colonial Stores, it is obvious that greater care than ever must be taken in substituting new windows for old. The doctrine that a dominant owner was entitled to all the light having been disapproved, and the question now being one of degree, *i.e.*, whether a nuisance has been caused, the dominant owner must be careful not to do anything which will confuse this issue, and of course by any interference the old law still applies that he cannot increase the burden laid upon the servient premises by any act of his own.

Flexible Wires.

PROFESSOR A. SCHWARTZ read an interesting paper recently on "Flexibles, with Notes on the Testing of Rubber," to the Institution of Electrical Engineers. Although rubber has been extensively used for insulating cables for many years, yet apparently there is no satisfactory test for its quality, and it is often adulterated with many cheap ingredients which affect its mechanical and electrical properties. Professor Schwartz describes an ingenious stretching test which his experiments show can be trusted to indicate satisfactorily the quality of the material. In the discussion it was objected that the effects of the temperature of the rubber under test had been left out of account, but further experiments will easily settle this question and show how the test may be specified to get standard conditions. The main object of the paper is to describe the purposes to which flexible wires may be put for electrical purposes, to point out the limitations to their use, and to indicate a suitable specification. He points out that about 20 per cent. of the small number of fires due to electricity can be attributed to flexibles carelessly fixed. Flexibles ought never to be brushed down with an oily brush. In Lancashire cotton mills the brush used for cleaning the machines is also often used for brushing off the fluff adhering to the flexibles, and hence there is a serious fire risk. It is proposed to limit this risk by returning to the old practice of putting a small fuse in the ceiling rose. The effect of the continual bending of a flexible round a counterweight fitting was fully investigated, and in some cases the lamp had to be pulled up and down hundreds of thousands of times before the flexible broke. In a special type of

flexible tested the wire was still unbroken after the lamp had been pulled and up down 1,500,000 times. In connexion with lifts and hoists where the ordinary flexible sometimes gives trouble the use of this "gymp" wire would be advantageous. The author has carried out an immense number of tests, and is to be congratulated on the thorough way he has done his work.

Locomotive Engines and Vehicles.

IN his presidential address to the Institution of Mechanical Engineers Mr. T. Hurry Riches dwelt chiefly upon the considerable strides that have been made in the direction of increasing the size of locomotive engines and vehicles during comparatively recent years. Owing to the demand of the public for more space and comfort and to the effects of competition, much larger and heavier passenger vehicles have to be hauled, thus necessitating far more powerful locomotives than those formerly found adequate. The problem constantly before railway engineers in the present day is how to provide increased power without overstepping the prescribed limits of load and structure gauges, a difficulty that would have been greatly reduced if a wider gauge than the present standard had been adopted in the early days of railway construction. Mr. Riches expressed the wish that the 5-ft. 6-in. gauge—used to-day in India, Canada, Spain, Portugal, and some South American States—had been applied in this country, but in our opinion a 6-ft. gauge would have been still better. However, the historic battle of the gauges was settled long ago by an irrevocable victory of disastrous character, as everyone now realises, and locomotive designers must make the best of existing conditions. We quite sympathise with Mr. Riches in regretting that the fine old single-driver locomotive with 7-ft. or 8-ft. diameter wheels has had its day. Although excellent for light express traffic, these engines were deficient in adhesion, and so were displaced by the four-coupled type, with somewhat smaller driving-wheels. These in turn are giving way to the six-coupled and eight-coupled types, with wheels of further reduced size, in response to the ever-increasing demand for higher power and the consequent necessity for greater adhesion. While the wonderful improvement in passenger carriages is matter for congratulation, we are unable to agree with the suggestion that goods waggons are generally suitable for the needs of traders, or with the opinion that high-capacity waggons are being used in this country wherever a suitable place can be found for them.

Disregard of Railway Signals.

WE have several times commented on the apparent contempt of some engine drivers for railway signals, a mental condition probably engendered by long familiarity and encouraged by the fact that no penalty follows the breach of regulations unless fatal consequences ensue. A useful warning on this point is contained in the Board of Trade report by Colonel Yorke relative to the collision which took place in January last at Thingley Junction on the Great Western Railway between a passenger train from Westbury and a goods train from Swindon. Colonel Yorke finds that the collision was due to the fact that the driver of the passenger train passed the home signal of the branch line when it was at danger, and so caused his train to foul the main line at the moment when the goods train was passing. Railway companies are compelled to spend large sums of money in providing signals for the safety of the public, and are liable to heavy penalties for non-compliance with the requirements of the Board of Trade in this respect. But such precautions are absolutely nullified if engine drivers persist in regarding signals as indications which they may obey or disobey, as they think fit. Occasionally, when serious accidents occur as the result of disobedience, proceedings are taken against the responsible persons, but in the majority of cases where comparatively little harm is actually done, the culprits escape punishment. We are glad to note that Colonel Yorke calls attention to the fact that under the Regulation of Railways Acts of 1840 and 1842, statutory penalties are attached to offences whereby danger is caused to the public or to persons on the line, and hope that the authorities will in future show themselves somewhat more ready to bring this law before the notice of offenders.

Mr. Maclean's Gallery.

THE oil-paintings at Mr. Maclean's exhibition in the Haymarket, now open, include a fine Corot, a landscape with tall trees and a group of dancing figures in the foreground; a composition which seems to have been repeated several times, in one form or another. Beside this is a fine Dutch landscape by Gorter. The exhibition includes works by Messrs. Ziem, Van Marcke, Clausen, Lhermitte, and other known painters, but not much of special interest beyond the two works first mentioned. In the outer room is a collection of water-colour drawings by Mr. E. H. Marten, under the title "The White Cliffs of England," being subjects mainly on the Dorsetshire and Devonshire coast. Though some of these are rather mannered and conventional in style, the collection as a whole is a good one, and includes some fine landscape effects.

The '91 Art Club.

THE '91 Art Club are holding an exhibition of pictures, sculpture, and handicrafts at the Alpine Club. The majority of the exhibits are moderate-sized oil-paintings. Miss E. M. Peile's "Spring in the North" (37) is a very bold rendering of dark trees against a sunny sky, and the colour, though rather strong, is distinctly fresh and pleasing. Miss Emily A. Lang's "Evening, near Deal" (40), is also a good sunlight effect. A small sketch of "Herefordshire County" (58), by Miss Lilian Edmonds, shows a great feeling for distance and atmosphere. "The Cleeve Valley, Dartmoor" (18), by Miss S. E. Whitehouse, is an effective treatment of mist in the hills. There are several studies in pastel, three by Miss M. A. Bell (Mrs. Eastlake), (6, 7, 8) that are very strong in treatment, though with rather crude colouring. There are also a fair number of water-colours. The water in Miss Eleanor Ramsay's "The Watering Place" is very well managed. Among the sculptures those of Miss E. M. Rope are most worthy of note, her five small bas-relief panels, "The Bell-Ringers" (166, 167, 168, 169, 170), are delightful, as are her four larger works (159, 160, 161, 171), in which her children are as charming as ever. Miss Daisy Hansford has two or three exhibits. "Motherhood" (174) is unpleasantly angular, but "Child's Head" (176) is very quaint and pretty. Miss K. Tizard has a well-executed bronze statuette, "Giotto" (183). Among Miss Herbert's work, "Irish Peasant Woman" (181) is a clever though rather roughly-modelled bas-relief, and "The Gardener" (186) is a bronze relief of a nice old lady. There is a good deal of very nice jewellery work. Miss Alice Kinkead has a lovely necklace of enamel and stones (*d*) in her case (210), and Miss Edith Hayter has another in case 211 (*b*). Miss Caroline B. Richardson has three book-covers in embossed leather-work (212, 213, 215). There is a small collection of miniatures which, on the whole, are not very satisfactory.

THE ARCHITECTURAL ASSOCIATION.

THE last ordinary general meeting of the Architectural Association for the present session was held on Friday last week at Tufton-street, Westminster, Mr. W. Cave presiding.

The Secretary read the minutes of the last meeting, which were confirmed.

The Chairman announced that Mr. L. D. Martyn, of West Hampstead, and Mr F. W. Somers-Smith, of Walton-on-Thames, had been elected members.

Mr. C. Wontner Smith stated that the annual dinner would be held the following Friday night at the Georgian Hall, Gaiety Restaurant, at 7.30.

The New Officers.

The Chairman read the scrutineers' report, and announced the election of officers for the session 1907-8. The report stated that 371 voting papers were received, which was a decrease of thirty-five on last year. Eight papers were rejected as invalid, which was a decrease of three on last year's figures. The voting resulted as follows:—

President, Mr. Walter Cave. Vice-presidents: Messrs. Arthur Keen, 358 votes; Henry Tanner, jun., 357 votes. Council: R. S. Balfour, 290 votes; E. Guy Dawber, 289 votes; A. Needham Wilson, 271 votes; Louis Ambler, 250 votes; F. D. Clapham, 245 votes; W. Curtis Green, 241 votes; E. W. M. Wonnacott, 230 votes; J. S. Gibson, 229 votes; Sir A. Brumwell-Thomas, 188 votes. Hon. Treasurer, H. T. Hare. Editor of the *Architectural Association Journal*, Baxter Greig. Hon. Librarian, Edwin Gunn. Hon. Secretaries: C. Wontner Smith and Maurice E. Webb. Hon. Solicitor, W. H. Jamieson. Hon. Assistant Librarians, Percy May and T. W. Watkins.

Not elected: Messrs. R. Frank Atkinson, Allan Potter, P. W. Lovell, H. A. Hall, T. Fyfe, Stanley Towse, S. G. Tatchell, F. Lishman, and K. Gammell.

Votes of Thanks.

The Chairman proposed votes of thanks to Messrs. W. Baird, J. V. Denington, P. J. Turner, C. W. Beaumont, and W. A. Jeckells, the scrutineers, for their services; to Messrs. Arnold Mitchell and John Murray, the retiring Council members; to the School of Design Visitors; and to the Press; and these were carried.

Liverpool Architecture.

Mr. F. W. Simon then read the following paper:—

"I accepted the invitation of your Council to read a short paper on Liverpool architecture with considerable doubt as to my ability to interest you sufficiently—you who are in daily touch with the works of the leaders of our profession; yet as you have expressed a desire to hear and see something of what Liverpool architects have recently been doing, I feel that you will bear with my shortcomings.

I am to deal with modern work and not with that of the past, with the works of living architects. Therefore, gentlemen, I

must refrain from criticism which may be indulged in over a cigar by the fireside but is not for the public platform, and must leave you to form your own opinions and to apportion praise or blame as you may think fit.

I come, therefore, before you to-night more as a showman than as a lecturer, and I shall hope to interest you for a short time by showing you a number of photographic views thrown upon the screen by the aid of the lantern, accompanied by a few brief explanatory remarks.

I have brought with me a number of working drawings and photographs which have been kindly lent me by the architects with whose work I shall deal, and which I trust you will find time to glance at on the conclusion of my paper.

Liverpool cannot boast of any buildings of great antiquity, though it is celebrating this year the 700th anniversary of the granting of its city charter. Little seems to have come of this early encouragement, and 250 years ago Liverpool was still little more than a village on the banks of the Mersey. Yet now Liverpool has its architectural tradition, and I should like briefly to refer to a few of the older buildings.

The Town Hall is the oldest public building in Liverpool. It was erected in 1756 from designs by John Wood, of Bath. The interior was destroyed by fire in 1795, and was reconstructed, and the dome was added at the same time. The reception-rooms, which occupy the entire first floor, form a very fine suite treated in the Adams style, perhaps a little later, and they still contain the furniture of the period.

Then we have St. George's Hall, which has been described as the finest building in the world; at any rate, Liverpool people like to think it so. As a matter of fact, this remark is attributed to Mr. Norman Shaw. As you all know, it was erected from designs by Elmes, between the years 1838 and 1854. Harvey Lonsdale Elmes was only twenty-four years old when he was awarded the first premium in the competition which was held for this building, and I am sure that we, the present generation of architects, congratulate ourselves that, though so young, he was entrusted with this important work. I will not enter into a further detailed description of this noble building, which was completed, after Elmes' untimely death, by C. R. Cockerell. Without doubt St. George's Hall has had great influence in creating among the Liverpool architects and the Liverpool public a respect and love for noble and stately architecture.

The interior does not appear to me to be as successful as the exterior. The Madeleine, in Paris, to which it may be compared, is much finer. It is also spoilt by the present colour decorations and the gaudy stained-glass windows.

At the back, or rather to the west front, of St. George's Hall, the Corporation have recently laid out what they are pleased to call a garden, with terraces, walls, piers, and railings. It is a sad specimen of municipal bungling. I trust poor Elmes does not know about it, for the repose of his soul would be sadly disturbed. Do not miss seeing this if ever you go to Liverpool.

Mr. Cockerell also designed the Bank of England, in Castle-street, a building of great dignity and refined detail, combined with great vigour and originality. This building I can recommend to students for careful study, and may I suggest that it would be of high educational value for some student to measure and publish in book form Cockerell's more important works?

The classical tradition created by St. George's Hall was continued in the designs of the Picton Reading-room or Rotunda, erected in 1860 from the designs of Mr. Thomas Allom; the Walker Art Gallery, in 1874, from the designs of Messrs. Cornelius Sherlock and H. H. Vale; then the Brown Library and Museum; and, finally, the Technical Schools and Museum extension, by Mr. Mountford.

The Municipal Buildings, in Dale-street, which were opened in 1867, were designed by Mr. Robson. The Government Offices in Victoria-street is a simple building with its detail carefully thought out.

Opposite this is the Post Office, a picturesque design in the French Renaissance style, by Sir Henry Tanner.

Behind the Town Hall are the Exchange Buildings, enclosing a large space which goes by the name of 'The Flags,' where the merchants and business men of the city are wont to congregate. It wears now a rather deserted appearance, owing to the removal of the cotton brokers to their new Exchange. The Exchange Buildings were designed by Mr. T. Henry Wyatt.

The University is an important work designed by the late Mr. Alfred Waterhouse, and another important building which belongs to old Liverpool, and which I had almost forgotten, is the Custom House.

Now I come to a group of buildings on which I will dwell, perhaps, a little longer, believing that it is to these more especially that your attention has been recently directed, and which have led you to express the wish to hear and see something of recent Liverpool architecture.

I will mention first the head offices of the White Star Steamship Company. You will readily recognise Mr. Norman Shaw as the author of this building. It reminds one at once of his design for New Scotland Yard. Like it the two lower stories are faced with granite and the upper stories are treated in brick with stone bands and dressings. Mr. J. Francis Doyle, of Liverpool, was associated with Mr. Shaw in the designing and construction of this building. The design arrests one's attention by reason of its boldness and its able detail.

Will it be heresy if I throw a doubt upon this treatment of a lofty city building? The charm of great gables and ample roofs is convincing in the fine old tithe barns of England and the long low cloth halls of Flanders, but are they right when applied to a lofty city building? Yet the genius of Norman Shaw should surely be a sufficient guide in this matter.

Another of Mr. Shaw's works is Parr's Bank, in Castle-street, carried out in conjunction with Messrs. Willinck & Thicknesse, which, with its simple and beautifully-proportioned fenestration, comes as a delightful relief from the surrounding work, where every story has a fresh motive and every window a fresh type of embellishment. Here, again, the lower stories are in granite, and the upper walls are faced with marble with grey bands. This is an experiment, and we have yet to see how marble stands in a Liverpool climate. The window dressings and cornice are in terra-cotta.

Messrs. Willinck & Thicknesse have kindly lent me a large number of photographs.

My next subject is the head office of the Royal Insurance Company, the work of Mr. J. Francis Doyle. I think we may say that Mr. Shaw's influence is apparent in the design of this building. Mr. Doyle has kindly lent me a full set of one-eighth scale working plans. They merit most careful study, as do also his details of the interior and the steel construction. It was the wish of the directors that the large general office which occupies the full width of the building on the ground floor should be unobstructed by columns, and Mr. Doyle devised a very clever form of construction to achieve this and to get rid of the deep girders which would have been necessary for a span of 50 ft. in order to carry the great weight of the corridor walls and double chimney-shafts of the upper floors.

From this illustration you will see that the steel construction is quite independent of the walls. The steel stanchions rise from the sub-basement to the wall head. On the third floor they are connected by arched steel girders, 34 ft. apart, and from these girders the first and second floor tie-beams are suspended. These girders are hidden in the thickness of the double chimney breasts, and it is interesting to note that each chimney-stack weighs over 620 tons. Mr. Doyle is to be congraulated on this able and novel solution of a very difficult problem, and also on the production of one of the finest buildings in Liverpool. The lower story is faced with granite; the remainder of the walls are faced with Portland stone. The sculptured work was executed by Mr. C. J. Allen, of Liverpool.

The board-room is panelled in walnut, and from the ceiling are suspended some fine old Dutch candelabra.

Mr. Doyle is also responsible for the Bank of Liverpool, Moss-street Branch, and the North and South Wales Bank, Bold-street Branch, and the one-eighth scale working plans of these two banks are exhibited.

I now come to the largest building recently erected in Liverpool, namely, the new Mersey Dock and Harbour Board Offices. The Dock Board, you may be aware, controls and regulates the Mersey port, with its enormous traffic and its acres of docks, and I believe I am right in saying that the traffic which enters and leaves the port of Liverpool exceeds in tonnage that of London, Glasgow, and several other ports added together. With the growth of the port it was found necessary to centralise and provide more accommodation for the ever increasing staff, and so the Dock Board determined to erect a building ample and spacious, a visible expression of its powers and influence. We may congratulate Messrs. Briggs & Wolstenholme, Mr. F. B. Hobbs, and Mr. Arnold Thorneley on the fine building they have designed and carried to a successful completion. Unfortunately, I cannot show many photographs of this building, as it has only just been completed and is not yet opened. But the architects have been most kind, and have lent me a set of one-eighth scale working plans, some large ½-in. scales of the dome, and also drawings of the steel construction, and a full-size of the large cornice. A study of these drawings will give you a fair idea of the building. This building occupies the southern portion of one of the finest building sites in Liverpool, namely, the site of the old St. George's Dock, and it faces the landing-stage and the river.

Two streets have been carried across the old dock, dividing it into three portions. A little consideration and forethought, and the Dock Board would have reserved for themselves the central block and made their own building with its dome the central feature, reserving to themselves the control of the sites on either side; but they do not seem to have thought of this, and disposed of the other two sites without restrictions, and on one is to be erected a building with its main cornice 130 ft. or 140 ft. above the street level, whereas the cornice of the Dock Board Offices is only 70 ft. Thus the opportunity for carrying out a fine architectural scheme has been lost. This building has many points of interest, both in plan, design, and construction. It is raised on concrete arches and piers, which are founded on the solid rock at the bottom of the old dock, some 30 ft. below the street-level. No use is made of the space below the basement-floor, which is some 7 ft. or 8 ft. below the street, and is covered with a layer of asphalt to keep down the tide which at times is said to rise in the old dock. The main feature of the plan is the large central hall, with its radiating corridors which give access to the various departments. This hall is carried through every story with surrounding galleries and finds its architectural expression in the dome which crowns the building. This dome is 50 ft. in diameter at the drum, and the finial is 220 ft. above the street-level. You will be able to study the construction of this dome from the architects' detailed drawings, but I might explain that the stonework of the drum is supported on a steel structure formed of composite steel stanchions, three at each octagonal angle, so placed as to form a triangle on plan, and braced horizontally at each floor-level. These stanchions are carried down to a concrete bed with a steel grillage, placed on a foundation of blue brick, which in its turn rests upon the concrete piers mentioned before. The steel stanchions are encased in breeze cement concrete, which helps to stiffen the metal, renders it fire-resisting, and preserves it from decay. The outer dome is also framed up in steel with a 6-in. thickness of breeze-concrete, in which is embedded a layer of strong expanded metal sheeting, wood-plugs are let into the concrete, and to this the copper covering is attached. Portland stone has been used throughout for the exterior, the lower portion of the central hall is lined with marble, and the upper portion, for the sake of economy, has had to be carried out in plaster. The total cost has been about 300,000*l.*, and the architects tell me that they have persuaded the directors of the Dock Board to agree that 5,000*l.* be added to the contract to cover all extras, and that there shall be no re-measurement whatever. I think in this they have shown almost as much skill in their diplomacy as in the architecture.

Colonial House, the headquarters of the Elder Dempster Steamship Company, is another important building, by Messrs. Briggs, Wolstenholme, Hobbs, & Thorneley.

The ⅛-inch scale plans are exhibited in the room and from them you will see that the plan is a simple and effective solution of a problem which must occur from time to time. The exterior is faced with Caefn stone, and has a base of red polished granite. The shafts of the large columns on the upper floor are also in red granite.

The new Blue Coat Hospital or School is another work by the same firm of architects, and again they have kindly lent me their plans. I will not detain you by a long description of them, except to remark that it is an old charity foundation for resident poor boys, and so lies rather outside the usual type of school buildings. The school chapel is particularly interesting.

The next building is the new Cotton Exchange, by Messrs. Matear & Simon. The cotton trade is one of the most important in Liverpool. Formerly it was carried on in the open air on the 'Flags' behind the Town Hall. Then a room was acquired in which to meet and do business under shelter, and this also soon proved inadequate, and a new and larger Exchange became a necessity. The problem we had to solve was to provide a large, spacious, well lighted and ventilated exchange-room, with numerous telephone-boxes, cable-rooms, post-office, and telegraph-office, smoke and reading room for the members of the Asociation, board-room, secretary's suite, bank and clearing house, arbitration and appeal rooms, and as many offices to let as possible. This building stands on an island site, 355 ft. long by 145 ft. wide, and the main front faces south-west.

It is essential that a cotton-office or sale-room should face north, north-west, or north-east, as a steady sunless light is required in order to judge accurately the nature and value of the cotton staple. We took advantage of this requirement, and placed our sale-rooms and offices to let to the back, namely, north-west and north-east, and brought the exchange hall right to the front, and so found ourselves in the happy position of having to design a façade untrammelled by the usual window requirements.

The plan generally is laid out at 10 ft. centres, both latitudinally and longitudinally. This greatly facilitated the setting out and provided, so to speak, a module for the whole building, and has, I believe, helped in a great measure to secure a unity of scale and effect. I might also mention that the clear area in the centre between the columns measures 103 ft. long by 73 ft. wide, the longer side being equal to the diameter of the square of the shorter side. It may interest some of the younger students to know that this proportion is that of many of the Italian Patios, and that it provides a constant ratio between the two sides, making a subdivision into equal spaces easy.

Portland stone is used both externally and internally, the columns in the great hall are monoliths of Royal Pearl Norwegian granite with blue belge marble caps and bases, and I may say that these columns form an integral part of the structure.

The walls of the entrance porches are lined with Italian mazzano, and this material is used also for the large door architraves and the chimney-pieces. The north-west elevation is constructed entirely in steel encased with cast-iron. This form of construction was adopted in order to reduce the divisions between the windows to a minimum, for it is a great drawback in a cotton sale-room to have broad shadows cast upon the cotton samples which are spread out for inspection on the counters below the windows.

The wall panelling and doors in the large hall are in mahogany.

The smoke and reading rooms are in walnut, and the board-room and ante-room in oak. The chimney-piece in the board-room is in mazzano.

I am sorry that the drawings which I have brought are not as complete as I could have wished, but owing to the great speed at which this building was carried out all unnecessary labour and repetition and elaboration of the drawings had to be avoided; for the contractors, with a bonus or a penalty of 250*l.* a week in view, were worrying for information.

I have prepared for this paper a ½-in. scale detail of a portion of the front. The drawings were not given in this form to the contractors, but in small sections. There is also a full-sized detail of the cornice, the capital, base, and pedestal of the large Ionic arcade of the front. I may mention that I increased the cornice beyond the proportion it usually holds in relation to the frieze and the architrave. I did this to allow the entablature generally to tell more effectively in relation to the whole façade.

It may be interesting to you to know that this building, costing over 200,000*l.*, and carried in some cases 30 ft. deep into the solid rock, was erected, completed, opened, and fully occupied in eighteen months, and that the contractors and the Waring White Building Company gained a bonus of 2,500*l.* Whether we shall get any commission on this 2,500*l.* still remains to be seen.

I might, gentlemen, prolong my survey of Liverpool buildings indefinitely, but I feel that I am perhaps nearing the fulfilment of your desires, and that I have given you a sufficient indication of the more recent development of our art in Liverpool.

Before closing, however, may I refer very briefly to a few works of ecclesiastical and domestic character.

Foremost is the new Cathedral. It has still to be built, but the architect, Mr. Gilbert Scott, has kindly lent me a few drawings, which are exhibited on the walls. You are no doubt all familiar with his beautiful and original design, and agree with me that Mr. Scott is to be congratulated on having achieved so great a success so early in his career. He will no doubt bring his work to a successful issue, and future Liverpool generations will couple his name with that of Elmes, the youthful designer of St. George's Hall.

St. Agnes Church is by the late George Edmund Street. The charming vicarage was designed by Mr. Norman Shaw.

Quite near to St. Agnes Church is the Church of St. Clare, a very beautiful work by Mr. Leonard Stokes, who has kindly lent me some drawings.

Then we have the important church on Mossly Hill, which is such a conspicuous landmark as one approaches Liverpool by the London and North-Western Railway. It is by Messrs. Austen & Paley, who have kindly lent me some photographs which do not do the design justice. Messrs. Austen & Paley are also responsible for the Parish Church at Waterloo.

Mr. Percy Scott Worthington has lent me some drawings of his church hall in the Ullet-road, which is a charming piece of work, and to Mr. W. D. Caröe I am obliged for the loan of the drawings for his interesting designs in brick of the Swedish Church, in which he has so cleverly expressed the Scandinavian nationality.

With the domestic architecture of Liverpool and its neighbourhood it is hardly possible to deal in this paper. I have a few photographs of an interesting house at Hoylake by Messrs. Woolfall & Eccles, which they have kindly lent me. Dawpool, Mr. Ismay's house, by Mr. Norman Shaw, is well known to you, and possibly also the house on Bidston Hill, designed for Mr. Hudson by Messrs. Grayson & Ould, reminiscent of little Moreton Hall and other fine old half-timber houses in Cheshire. Finally, I must not forget to mention the industrial village of Port Sunlight.

In conclusion, I would thank you, gentlemen, for your patient hearing. I would express my apologies and regrets to those architects whose work I have not had time to refer to, and my heartiest thanks to those who have come so generously to my aid with their drawings and photographs."

Mr. Guy Dawber, in proposing a vote of thanks to the reader of the paper, said it was quite one of the most interesting evenings they had had in that room. In one way it was a departure from the usual papers, because it dealt with work in a large city which they as Londoners were not very well acquainted with; he thought that it set excellent precedent for further papers of the same kind. For instance, they might deal one day with Birmingham, which contained many excellent old buildings and much beautiful work. The photographs they had been shown were truly excellent. He happened to know Liverpool fairly well, but he was sorry to say he did not know the old buildings which had been shown so well as he would like. It was a singular thing that it was in Liverpool that both Elmes and Scott, such young men, should have had the opportunity of carrying out what would probably be two of the finest buildings in this country, at any rate, if not in the world—St. George's Hall and the new Cathedral. In regard to St. George's Hall and what was he believed called the "Stoneyard" behind it, it was a deplorable thing for Liverpool that the latter should have been allowed to be perpetrated. A great opportunity was presented to the Corporation there, for it was a fine open space facing south-west, and, as Mr. Simon had told them, it had simply been cut up with stone walls, balustrades, and steps, without any attempt at design, and in the worst type of the *nouveau art*. The beautiful memorial to the Liverpool Regiment by Mr. Goscombe John suffered greatly by being surrounded by this trivial stonework. Mr. Simon had told them so much about the buildings of Liverpool that it was difficult to criticise, but personally he knew no town or city in the country that showed so much the influence of Mr. Norman Shaw. They would have noticed this in the new buildings, etc., the buildings they had seen that night, and he thought in that way Liverpool was certainly to be congratulated. Parr's Bank, in Castle-street, was his ideal almost of what a dignified street front in a large city should be. Whether the experiment of using marble and terra-cotta would answer would remain to be seen. It had been cleaned twice, he believed, since it had been put up, and whether the surface of the marble would last in a city like Liverpool that only time could show. Unfortunately, in London they had an experience in marble buildings in the Constitutional Club, in Piccadilly, which was quite as black as any other building. At present, however, the Liverpool building, with its marble and red terra-cotta dressings was an exceptionally fine example of modern street architecture. They had been particularly fortunate that night in seeing so many photographs of the new Cotton Exchange, and they would all agree in congratulating Messrs. Matear & Simon on carrying through successfully so fine a building. It did not fall to the lot of many architects to build a great work like that, but they had carried it out in an eminently satisfactory manner, and he felt sure that Liverpool, as well as the architects, were to be congratulated on such a beautiful and dignified building. He had been over most of it, and was greatly struck with the rapidity with which it had been built. It seemed almost incredible to think that a building of that size, so complicated in its detail and arrangements, should have been carried through and brought to a successful issue in a little over a year. In proposing the vote of thanks, he would like to express the hope that the Council might consider the question of having similar papers dealing with other towns in the future.

Mr. W. Curtis Green, in seconding the motion, said that he had listened to the paper with the greatest interest, because he had always regarded Liverpool with special affection and admiration. It seemed to him to be in the forefront in all educational matters and in the general class of its buildings, both public and private, and it seemed as if the big competitions had turned out most successfully for young men, which was a thing which would appeal to the sympathy of some of them.

Mr. H. H. Statham said that, as an old Liverpool man, he came that evening with a good deal of interest to hear the paper. He had not seen most of the recent buildings which Mr. Simon had mentioned, but he had a very clear recollection of a great many of the old ones. His very first recollection of anything connected with architecture was being taken as a child to go over the works at St. George's Hall, and seeing the big fragments of columns lying on the ground. One or two remarks he might make about St. George's Hall. He entirely agreed with the opinion which Mr. Simon quoted from Mr. Shaw—that it was really one of the finest buildings in the world, allowing for the unsuitability of the character of the architecture for this climate. But, unfortunately, there were a good many mistakes about it. In the first place there was the large pediment and portico at the end which was intended for the entrance, but, as a matter of fact, within his knowledge it was never used. The large square hall beyond the portico was simply a desert, and was never used for the entrance, but people

entered through the small doors at the other end; and the corridors, unfortunately, were very badly lighted. With regard to the photograph of the interior, that was rather deceptive, and he would not advise anyone who had not seen it to take their notion from the photograph, for it gave an entirely false idea of the large proportions and effect of the hall. The hall was quite at variance in one sense with the exterior; the exterior was purely Greek and the interior was Roman, but it was exceedingly fine in most respects, and had a far more spacious look than the photograph conveyed. There was one thing of interest which they did not see, and that was the very remarkable organ-case at the end, designed by Cockerell. That was reduced to a very small scale in the photograph, but it was a very remarkable design, and more particularly in the way he treated the large wooden pedal pipes, which he placed in a semicircle at the back of the organ. It was a very fine way of treating a thing which in an ordinary organ-case design was treated in a very practical and plain manner. He quite echoed what had been said about the excellence of the suite of rooms in the Town Hall, and it had this merit, in comparison with many suites of rooms in more modern town halls, that they were well designed and had a festive appearance without any exaggeration; the whole thing was quiet. There was another thing he could just remember, but which Mr. Simon could not, and that was the old quadrangle round the "Flags," built about the same time as the Town Hall, and probably Wood's design. It was a plain stone façade on an open arcade of round arches with massive rusticated piers; and if they had ever come upon that in any town they would have been struck with it as a remarkable piece of effective town architecture. It had to be removed, as the rooms were small and very badly lit, but he must confess that, whatever the merits of Wyatt's building, he thought it was a great come down in architectural effect from the old building. As he had said, he had not seen many of the new buildings, but he had followed the photographs with great interest, and, as he remembered old Liverpool, the paper had been particularly interesting to him.

Mr. Wonnacott thought they ought to emphasise the vote of thanks, because Mr. Simon had come at very short notice to fill a gap. They ought also to condole with Mr. Simon that he attended at the last meeting of the session, and he trusted he would not take the gathering as being representative of all their meetings. One point did occur to him—he had failed to discover Mr. Simon's name on the list of members, and he hoped that that omission would be rectified before long.

Mr. Louis Ambler supported the motion, and said that they had had a paper which would linger in their memory for some time, especially if they examined, as he hoped they would, the large number of drawings and photographs of the buildings which had been referred to. He had had the pleasure of seeing most of these buildings quite recently, and he agreed with what both Mr. Simon and Mr. Dawber had said as regarded the number of fine buildings to be seen in Liverpool. He thought that Liverpool compared very favourably with any of their large cities, except that they had no very fine streets where one got magnificent vistas, such as Prince's-street, in Edinburgh. The buildings of Liverpool, however, when taken as isolated examples were not surpassed, if even equalled, in any other city. One thing which struck him in examining the photographs of some of the newest buildings, such as the Cotton Exchange and the Mersey Dock Offices, was that already they seemed to have taken on a great deal of weather on the stonework. When he visited Liverpool in September the buildings were perfectly new and seemed to have just been cleaned down, but now they looked like buildings which had been erected several years. Almost every stone could be seen, with the different amount of weather it had got from the exposure, and with the various tints brought out according to the nature of the stone. One feared that in a very few years they would look almost black, like the older buildings—St. George's Hall, the Town Hall, and others. One thing which struck him with regard to the buildings close to St. George's Hall—the Walker Art Gallery, the Rotunda, the new technical buildings and museum—was that it seemed rather unfortunate that the Ionic order should have been adopted for the treatment of the last-named building, for the whole series of buildings, which were connected one with another, had the Corinthian order, and so the last addition seemed to be a little bit out of keeping. He agreed entirely with what Mr. Dawber had said as to the unfortunate laying out of the space behind St. George's Hall in the new art style. It was a most terrible-looking thing, and he hoped that it would soon be done away with.

Mr. Keen joined with the greatest pleasure in thanking Mr. Simon for coming such a long way. He was sorry to say that he did not know Liverpool at all. He had never been there, and was therefore not qualified to discuss the buildings. He felt sorry on that account that they did not have amongst the photographs some illustrations of the streets, so that they could have connected the buildings with their surroundings. There was no doubt about it that the separate buildings which were shown were of a very high average indeed, and Liverpool was to be congratulated on possessing such a fine collection of modern work, as well as of old work. He was beginning to fear that London would have to look to its laurels before long. He had a high opinion of London, and did not wish it to be cut out by any other town, but Liverpool appeared to be running it very close. They would all congratulate Mr. Simon on his own building, and it struck him as being a most remarkable production in view of the fact that it was built at such alarming speed. Everyone knew the difficulty of turning out good work at high pressure, but Mr. Simon and his partner had succeeded admirably. He felt that they would certainly have to have Mr. Simon amongst their members. By the wonderful collection of plans and photographs which Mr. Simon had brought there he had shown that he could follow up a subject with great enthusiasm, and it was enthusiasm that they wanted and must have in that Association.

The Chairman said he thought that the work of the big towns was always of great interest to them as Londoners, and one of the most interesting of all was Liverpool. The effect of local conditions and the influence of one man's work (that of Mr. Shaw) was very remarkable. There were other big towns in England which he hoped they would be able to get illustrated in the same way, and it might be of interest to members to know that the Association was now arranging for a week-end visit to Birmingham at the end of June under the guidance of Mr. Bidlake, who would show what was to be seen. The growth from the old to the new work was very interestingly shown on the screen that night, and it seemed to grow wonderfully naturally; but, at the same time, there could be no mistaking the fact that the later buildings were absolutely designed for modern requirements. Mr. Doyle's construction and his ingenious method of handling his first floor above his great girder was a feat which he believed was tried for the first time, and he felt that it was one which would be followed. He had the good fortune to go over that building about Christmas-time, and was exceedingly struck with it. There was nothing perhaps so remarkable to-day as the extraordinary care which was taken in the detail of these big modern business premises. Money seemed to be absolutely of no consequence, and the interior of the building he had referred to was in a way the most lavish of any he had ever seen. With the bronze architraves of the door, the marble and oak, and carved moulding, it looked as if the architect selected the most beautiful materials which could be used, and had no difficulty in persuading his clients to use it. Perhaps there was less sign of the modern advance in the detail than in the outside. Then they had Mr. Simon's own building, which they had all enjoyed immensely. One of the most interesting points to him was the simple design of the 10-ft. centres, which no doubt was a thing for reflection. The steel construction in the back street elevation, too, was a thing which had to be faced, and it seemed to him to be a satisfactory solution of that problem.

The motion for a vote of thanks to the lecturer was carried unanimously.

Mr. Simon, in replying, said it had been a great pleasure for him to have come down and given the paper. It had been interesting to him to get the loan of drawings from Liverpool architects, and also from a number of London architects who had done work in that city. He could not add much to what he had said in the paper. He did not indulge in any criticism, as he thought it was best left to his hearers to form their own opinions. Of course, in one item one indulged in the most scathing and remorseless criticism, and that was in respect of the stoneyard behind St. George's Hall. The wish had been expressed that it might be soon removed, but he questioned whether that would ever be realised. A sum of 35,000*l.* or more was spent in creating this garden, with its undulating brick walks. He saw little likelihood of it being done away with, because every day they were erecting more statues in it. With regard to the money lavished on the Royal Insurance Company's building, of course they were an extremely wealthy company, but he believed even they themselves rather hesitated to disclose to their shareholders the sum which was spent upon that building. It cost as much if not more than the Cotton Exchange, and was a much smaller building. He might refer to the steelwork. Of course, one was obliged to adopt this form of construction of having very small piers between the windows, and one had to encase it in iron and treat all the façade in iron, because under the by-laws if they had introduced any brick at all the brickwork would have had to comply with the by-law regarding such work, regardless of any calculation in respect of the weight-carrying capacity of steelwork. They were rather behind in regard to some of their building by-laws in that respect, and he thought that also applied to London.

The proceedings then terminated.

THE SOCIETY OF ARTS:

Lustre Pottery.

A MEETING of the Applied Art Section of the Society of Arts was held on Tuesday at John-street, Adelphi, W.C., when Mr. W. Burton, F.C.S., delivered a lecture on "Lustre Pottery," Mr. J. C. Wedgwood, M.P., presiding. A fine collection of examples of lustre pottery from the Victoria and Albert Museum and from private owners was on view during the evening, and served to illustrate Mr. Burton's interesting paper.

The lecturer said that during the last fifteen years a great deal had been learnt about the history of the various lustre processes, and great advances had been made by Hungarian, French, and English potters in extending and perfecting the various methods of lustre decoration. One feature which all the lustres had in common was a shining metallic quality of surface which marked them off from every other kind of pottery decoration. Though this quality was more or less manifest in all the decorations of this class produced during the last thousand years, let them study it first in the so-called copper and silver lustres of our everyday English pottery, introduced a little more than a century ago. Here, at all events, the metallic quality was developed to the utmost, for pottery covered all over with such lustres as these recalled at once the characteristic appearance of vessels shaped in metal, and there could be no doubt that the Staffordshire and other English potters of the late XVIIIth and early XIXth century thought they had discovered a delightfully simple method of making their pottery look like metal; for they shaped their vessels in exact imitation of those of the silversmiths and goldsmiths of the period; and as they were mechanically-minded people they modelled their mugs, jugs, sugar-boxes, teapots, and candlesticks as accurately as possible on the popular Sheffield plate of the day. All unconsciously they seemed to have been following the example of the first inventors of the lustre decoration, for there was no doubt in his mind that the potters of Egypt, Syria, and Persia, who made the first "lustres," in those far-off centuries when the East was still the cradle of the arts and sciences, also hailed their invention as a brilliant discovery that enabled them to make pottery look like gold. We were so accustomed in these days to see on every hand pottery decorated with gold fired to the glaze that it was difficult to realise what a modern invention the gilding of pottery and porcelain really is. Gold fired on to the surface of glazed pottery appeared to have been unknown to all the great potters of the Middle Ages. He was inclined to the

opinion that the Chinese and Japanese might have taught its use to Europeans, and there was ample evidence that its use in Europe was scarcely earlier than the middle of the XVIIIth century. So far as we could learn, it was some unknown experimenter in the Staffordshire potteries who first made this discovery, and during the last decade of the XVIIIth century the method was in extensive use in England. It was interesting to recall, too, how soon the newly-discovered metal platinum was brought into use for the same purpose. Just as it was found that gold-chloride solution diffused in a thick oily menstruum would furnish a coat of shining gold, one of the first industrial uses of platinum was its application in a similar way to produce a shining deposit of platinum on crockery, which went by the common name of silver lustre. He always liked to imagine that the introduction of these shining metallic deposits of gold and platinum owed much to our greatest English potter, Josiah Wedgwood. The deposit of metallic platinum was always dense and metallic, so that vessels coated with it shine almost like silver, hence the unfortunate name of "silver" lustre that had been generally given to it. The gold lustre was sometimes quite as dense, though we often meet with it used so thinly that the colour of the pottery on which it had been applied was an important factor in determining the colour effect. On white or cream colour ware if the lustre was thinly applied it gave only a pale purplish stain, with a faint golden sheen, but on red pottery or where it was thickly applied it might look like gold, copper, or bronze. Sometimes copper was added to the gold to produce a darker and more bronze-like effect. If we were to consider the production of a metallic surface on pottery as the true aim of lustre, then this English pottery of the late XVIIIth and early XIXth century must be regarded as the most perfect "lustre" pottery ever made, for nothing could exceed the evenness and regularity of its shining metallic surfaces. The metallic quality of surface was, however, only one feature of the finest lustre effects, and neither the most important nor the most beautiful one. If we examined examples of the fine lustres of the Persian, Spanish, or Italian potters, we should find that the decoration, however strong and metallic it might be in certain lights, was softened and beautified by a wonderful play of iridescent colour, so that it assumed something of the changing quality of the inside of a pearl shell, or was diversified by a play of brilliant colour like a soap-bubble or the feathers of a peacock's tail. But in these qualities the metallic films of gold and platinum were entirely deficient, for they presented nothing but a dazzling unbroken surface like a sheet of pure metal. These brilliant interference colours—soap-bubble colours one might well call them—of true lustres, were due to the presence of thin films, and the process which gave the heavy metallic deposits of gold and platinum was opposed to the production of metallic films sufficiently thin to be iridescent. The iridescent films were most easily produced from other metals, such as bismuth, silver, and copper; precisely because these metals were capable of being tarnished or oxidised in air, while gold and platinum were not. The only form of pottery decoration which in his opinion ought to be called lustre was that which exhibits, besides the metallic sheen, this play of iridescent colour, and it would be much better if our so-called English lustres, made with a basis of gold or platinum, were described as "plated" or "metallised" pottery, so as to avoid the confusion into which many writers and collectors had fallen of treating these not very artistic products as if they belonged to the same category as the splendid lustres of old time. The problem of making true lustre pottery was that of obtaining films of metal, generally of copper and of silver, on a fired pottery glaze in such a way that the metallic deposit had iridescent colours upon it. The gold and platinum deposits could be obtained with the greatest ease by firing the article coated with the resinous or oily pigment in an ordinary muffle furnace at a clear red heat, for the two noble metals were reduced to the metallic state in the presence of carbonaceous matter; and, when once deposited, they remained absolutely untarnished by the air, so there was no need to exclude the atmospheric oxygen from the kiln. But with silver and copper the case was quite different, for these metals were not so easily reduced to the metallic state as gold and platinum, and even when they were reduced they very readily oxidised and turned black at a red heat unless care was taken to exclude all oxygen. Fortunately, however, silver and copper were capable of forming volatile compounds at a comparatively low temperature, especially in the presence of reducing gases, such as hydrogen, coal-gas, and carbonic oxide; and these volatile compounds will penetrate or stain into any ordinary pottery glaze, giving a characteristic yellow stain with silver, and a magnificent red stain with copper. Moreover, if the firing and the action of the reducing gas be continued long enough, the yellow or red stains become deeper and deeper in colour, and they finally develop an iridescent film on their surfaces. Described in this way, the process of true lustre seemed simple enough, yet in actual practice it proved to be one of the most delicate and difficult of all the methods of decoration yet used in connexion with pottery, and this difficulty and uncertainty was probably the explanation of the curious fact that after the process had reached a high pitch of excellence in Spain and in Italy it fell into almost complete disuse in Europe, and had only been revived since about 1860.

The lecturer referred to the origin of the process and described Persian, Spanish, Italian, and various other lustres, and gave an account of the processes found best adapted to the production of pottery lustre.

At the conclusion of the lecture a hearty vote of thanks was accorded to Mr. Burton.

THE ART UNION OF LONDON.

THE general meeting of the members of the Art Union of London was held in the Lecture Hall of the Society of Arts, John-street, Adelphi, on the 25th ult., Sir R. Martin, Bart., Vice-President, presiding, when the seventy-first annual report was received, and the drawing of prizes of works of art for the year 1906-1907 took place.

The Council, in their report, state that the experiment of employing mezzotint for the engraving of the past year had been well justified. The work had been much appreciated by the subscribers, and the printing capacity of the plate, thanks to the thorough workmanship of the engraver and the careful treatment of the printer, had proved entirely adequate to the heavy demand made upon it. An interesting feature of the issue of the work had been the production of coloured impressions, colours printed in the recently revived XVIIIth century method. For many years past the lover of colour had had no choice between the chromo lithograph and the cheap three-colour print and the costly original painting; that limitation the revival of colour-printing from an engraved plate had removed. The method, which involved the careful and laborious painting of the plate by the printer, much as an artist paints his canvas, was intrinsically artistic, and the result, while comparatively inexpensive to acquire, was of acknowledged beauty and charm. The Council were glad to report that the issue of these colour prints had met with substantial appreciation.

The subscription list for the year now closing had enabled the Council after setting aside 1,000*l.* for the works of art presented to subscribers, to devote a sum of 500*l.* to the prizes to be distributed, making with the consolation prizes awarded to unsuccessful members a total of 196 prizes. The interest aroused by the exhibition in the Tate Gallery a year or so ago of a number of Turner's paintings previously not shown to the public induced the Council to commission Mr. Owen B. Morgan to make a monotint study of one of the most beautiful and characteristic of these works, "Shipping on the Medway." Mr. Morgan had carried out the commission with singular success—the sense of light and mystery which is the keynote of the whole work being most skilfully interpreted—and the Council had much satisfaction in including this interesting study in the prize-list. The Council also drew attention to the portfolios of etchings by Mr. Oliver Hall, the plates of which they purchased from that artist some years ago. These etchings ranked deservedly high among the works of modern engravers, and probably no more beautiful plates of their kind had of recent years been produced. Among the other prizes specially selected by the Council, in addition to the original painting of "Daydreams," exhibited at the Royal Academy, 1904, and valued at 200 guineas, and which was the first prize on this occasion, were:—One bronze statuette, "Hero," by Miss Margaret Giles (Mrs. Bernard Jenkins); six water-colour paintings, by various artists; six Marshall vases in Lambeth Doulton ware; six dragon jugs in Copeland Parian ware; ten rouge flambe potpourri jars; ten statuettes "The Dancer," by Miss S. Ruth Canton.

The Council announced that the long-desired amendment to the Canadian Criminal Code, restoring the ability of the Society's Canadian supporters to participate in the annual prize drawings had at length been obtained. The references to the work of the Society in the debates to which the amendment gave rise, both in the Senate and in the House of Commons at Ottawa, afforded the highest possible testimony to the widespread esteem in which the Art Union of London was held in the Dominion of Canada and to the value there placed upon its educational work. In virtue of the amendment the Council were enabled to distribute among the Society's supporters in the Dominion who (notwithstanding their temporary exclusion from the annual drawings) continued their contributions to the Society, the prizes to which they would have been entitled but for such exclusion. A special drawing was held for this purpose in November last, and the results were duly communicated to those interested.

As the annual plate for the coming year the Council are issuing an etching by Mr. C. O. Murray, R.E., after Mr. Niels M. Lund's painting of "Royal Windsor," in the Royal Academy Exhibition of 1905. Mr. Lund's painting of "London—the Heart of the Empire," as seen from the Royal Exchange, was commanded to be exhibited before Her Majesty the Queen, and he was recently selected by the Benchers of Lincoln's Inn to make a copy of Watts' great fresco of the "Schools of Jurisprudence" in their Hall for placing in the Bar Library at the Law Courts. Mr. Lund was a frequent exhibitor at the Royal Academy, and one of his works had been purchased by the French Government for the famous Luxembourg Gallery.

In the last report the hope was expressed that it might be possible to issue some example of the sculptor's art at, as nearly as possible, the minimum subscription of one guinea, and the Council had pleasure in announcing that they had acquired the rights of reproduction, in a miniature figure, "The Skipping Girl," by Mr. L. F. Roselieb, and that they hope very shortly to issue copies of this work in electro-bronze at a very slight, if any, increase upon the guinea subscription. Mr. Roselieb was a young sculptor who had won in addition to many prizes and medals the 100*l.* Scholarship for a model design in the City and Guilds of London Art School; 60*l.* Travelling Scholarship in the same institution; and the 80*l.* Landseer Scholarship in the Royal Academy Schools in 1905. The Council hope to be able to make further additions to the list of alternative works of this character at an early date.

In referring to recent acquisitions by and the work of various art institutions and galleries, the Council stated that the British Museum had no power of buying works, however excellent, by living artists, and it was, therefore, a matter of congratulation that the care of the Print Room was in such energetic and capable hands, for to the suggestion of the keeper and his assistant we owe the possession of the interesting and finely realistic drawing of "The Great Gantry—Charing Cross Station—1906," by Mr. Muirhead Bone, presented by the National Art Collections Fund. Through the Fund came also a beautiful study in black chalk, by Gainsborough; five elaborate pen and ink sketches of operatic scenes by the late XVIIth century artist, Il Bibiana; eighty-seven etchings of arms of the Augsburg families of the XVIth century, by Hans Burgkmair the younger; and a book printed in 1620, the woodcuts being mostly by Hans Weiditz.

They mention that the vacant Professorships at the Royal Academy of Sculpture, Painting, and Architecture have been respectively filled by the appointment of Mr.

Colton, A.R.A., Professor Herkomer, R.A., and Mr. Reginald Blomfield, A.R.A. Mr. Wyllie has been elected full Member, and Mr. George Henry, Associate. Special honours gained during the year by Academicians have been the bestowal of Knighthood on Sir Luke Fildes, and the presentation to Sir Aston Webb of the medal established to celebrate its fiftieth anniversary by the American Institute of Architects. It is to be awarded, irrespective of country, to those who have most signally contributed to the art aspect of architecture, and Sir Aston is the first recipient of the honour.

The report states that Mr. Sargent, R.A., and Mr. Wilson Steer have been asked to contribute to the gallery of self portraits at the Uffizi, Florence, and Mr. Lavering's portrait, destined for the same gallery, has been exhibited in Paris, where Mr. Arthur Cope, A.R.A., received the prize of 1,500 francs, founded by Mlle. Klumpke in honour of Rosa Bonheur; Mr. J. Olssen a second-class medal for painting; while "mention honorable" was awarded to Messrs. Lee Hankey, B. F. Gribble, Nesfield Forsyth, Arnold Mitchell, and Hon. Marion Saumarez. Mr. Spenlove-Spenlove's "Last Voyage" was purchased by the French Government.

At the Royal Exchange the new panel by Mr. Frank Brangwyn was unveiled towards the end of the year. It represents "Modern Commerce." Another decorative artist who has found his opportunity and has used it is Professor Gerald Moira, whose frescoes in Newgate Sessions House are now completed.

The report was adopted, and the drawings for prizes took place.

A COURT OF BUILDING FOR LONDON.

THE following letter from the President of the Royal Institute of British Architects is taken from the *Times*:—

"SIR,—The admirable letter from Mr. John W. Simpson, published in your issue of March 29 dealing with the above subject, is of the gravest importance to all owners of property, and the suggested reforms in the conduct of the preliminaries to building operations are worthy of the most careful consideration.

The difficulties, contradictions, and ambiguities of the various Building Acts, with their numerous by-laws, schedules, and regulations, are, perhaps, most patent to architects, who have in this matter to evolve order from chaos, and their task is rendered extremely difficult by the present machinery for carrying out the administration of the law.

Mr. John W. Simpson is to be commended for directing attention to this subject, which, as he says, by the Act of 1905 'has now brought matters to the climax of impossibility,' for not only are all projected buildings brought under the domain of this Act, but its retrospective character will have a far-reaching effect on all existing buildings, and it is safe to assume that it will entail the expenditure of many thousands of pounds for whch no return can be hoped, either in increased public safety or structural improvement. Its administration is likely to lead to grave differences of opinion between architects, property owners, and the London County Council, and consequent legal expenditure by all parties; and the advocacy of the establishment of a Court of Building for London is an attempt to deal with this complicated problem in a business-like manner.

The Council of the Royal Institute of British Architects are in cordial sympathy with the principle of the scheme so ably put forward by Mr. John W. Simpson; and they have appointed a special committee to inquire into the subject, to gather together information bearing upon it, and, if possible, to suggest the main principles governing the constitution of such a Court, in the hope that their labours will be of service to the whole community. When the Council of the Royal Institute have considered their committee's report, they may again crave the hospitality of your columns for the purpose of laying their suggestions before the public.

I am, Sir, yours faithfully,

THOS. E. COLLCUTT, President of the Royal Institute of British Architects.

9, *Conduit-street, W., April* 26."

GARAGE, BRIXTON-ROAD.—Messrs. John Allen & Sons, Ltd., of Kilburn, ask us to state that they were the builders for the work mentioned under this heading in the *Builder* of last week.

THE QUANTITY SURVEYORS' ASSOCIATION.

THE annual dinner of the Quantity Surveyors' Association, Incorporated, was held on Friday last week at the Criterion Restaurant, Piccadilly-circus, W., Mr. A. J. Gate, F.S.I., President, in the chair. There were also present:—Messrs. R. S. Ayling, H. P. Barber, H. H. Bartlett, P. Bywaters, A. S. Bennion, C. W. Bowles, A. G. Cross, Hon. Secretary, H. W. Crickmay, T. Costigan, J. Howard Colls, A. W. S. Cross, M.A., J. Chessum, R. L. Curtis, jun., S. Chatfeild Clarke, H. T. A. Chidgey, H. J. Camp, W. Davis, F. L. Dove, L.C.C. (President of the London Master Builders' Association), H. C. W. Dod, H. England, E. J. Hill, A. A. Hudson, W. R. Hood, H. M. Hodgson, H. A. A. Gate, J. Johnstone, Walter Lawrance, C. A. Kennett, J. G. Mahew, G. A. Ovitts, J. S. Parmenter, D. A. Ross, C. R. Reekes, C. Pearson Shaw, H. G. Tarrant, R. J. Tollit, H. W. West, W. Hoffman Wood, W. Woodward, and others.

The loyal toasts having been proposed by the Chairman and suitably honoured,

Mr. A. A. Hudson proposed "The Quantity Surveyors' Association and its President." He said that the Association had only been started some three years, in 1904, and when he saw such a representative gathering, he thought they had done very great things. The profession of a quantity surveyor, members of which the Association was exclusively composed, was one which was of essential importance to architects, builders—and lawyers; and it was an accurate profession. Knowing, as he did, quantity surveyors probably better than any member of the legal profession, he was bound to rely on them very greatly in the cases with which he had to do, and he did not rely upon them in vain. He thought he could say the same for builders and contractors, and he did not know what they would do without quantity surveyors. And the same could perhaps be said for architects. He thought that the sphere of usefulness of the Association might be greatly extended. He knew the ordinary duties quantity surveyors had to perform—the taking out of quantities, adjusting extras, measuring up on completion, etc.—and it seemed to him that, as the practice of the architect required the assistance of a business man, the quantity surveyor would become a necessary attribute of the profession of the architect, not only in the preparation of estimates of the work to be done, but during its progress. In very large works he knew it was the practice to refer constantly to the quantity surveyor. If the architect could say: "I design the building and approve the quality of the work, but such matters as ordering 'extras' as well as their value I refer to the quantity surveyor," it would reduce disputes to a minimum. They ought to apply themselves to the preparation of a form of building contract which would be perfectly equitable between employer and builder. He knew there was a contract form in existence, but he did not think it fulfilled those conditions; and he thought that nobody would be better able to prepare and draft such a form than an Association like the Quantity Surveyors' Association. It would be of great assistance to builders and contractors if a perfectly equitable building contract were prepared; based on the quantities, and making payment depend on the quantities. He thought that in the future we should have to consider vast changes in the development of property. He went about the country a great deal, trying to conciliate masters and men, and sometimes arbitrating between them; and, from all he saw and heard, the building trade was not in a good condition. He did not know why that was so; but, whatever the cause, he thought this Association should take every opportunity to develop all possible channels of usefulness. As to the President, he was one of the founders of the Association, and they could not have a better man at their head.

The President, in response, referred first of all to the effect of recent and contemplated legislation on architects, surveyors, and builders, and said that a friend of his remarked that modern legislation was aimed at the brains of the country, and that under the various laws the lawyers would have three-fourths of them in prison in less than two years, and the rest building jails to put them in. As to the Association, as Mr. Hudson had said, it had accomplished a good deal. It was not an advertising society, but he could say that the Council believed that a good deal had been done. They did not thrust themselves forward, and the deliberations of the Council were necessarily private, and what they did was not known; but they believed they had done, and were doing, work which was, and would be, of great benefit to the profession generally. When the Association was founded, it was not expected to revolutionise everything in a minute, for they were not foolish visionaries, but men, many of whom had been in the profession thirty and forty years, endeavouring single-handed and to the best of their ability to effect reforms. Single-handed they could not do it, but when they became associated together they thought they could, and they believed that they were, to a great extent, stemming what had been going on. They could have achieved more had they not had a big log in the path—had there been no Surveyors' Institution there would have been no difficulty at all. Nothing was easier than to keep up motion when it was once obtained, but it was inertia that was the difficulty. If they could have got the Institution to act according to its charter, as it should act, all would be well, but it ignored its charter, and that was the great trouble. He was glad to say that their little body of some 200 members had been able to move, to some extent, this body of 6,000 members, and they were glad of it, because they wanted the Institution to go forward and not backwards, as it would do if left to itself. The Council took credit for never having asked for assistance in their task, arduous as they knew it to be, and though they felt sure that architects and builders would help them if appealed to, the Association felt itself to be strong enough to accomplish what it had set out to do, and they would not ask others to help them until they were able to show that what they were doing was for the good of others as well as themselves. They were working for themselves, of course, for the evils they complained about affected them as surveyors, but what they were doing was also for the good of architects, for what was the position of an architect who got a bad quantity surveyor? How many architects had been troubled by the tenders coming to too much, and had known that this was because the quantities were bad? How many builders had had their quantities come to too little, and did not know where they were? Architects and builders would get to understand thoroughly the objects of the Association, and that the members guaranteed the absolute accuracy of their quantities, and offered to pay in the event of the quantities being wrong, without nonsense and prevarication. According to article 13, every member was bound to pay the client for any error in the quantities, and should a quantity surveyor with the letters Q.S.A. after his name make his quantities too full or too short, there was no need to trouble a solicitor, who knew very little about such matters, or a counsel, who knew still less, or a judge, who knew nothing at all—witness the case of the judge who gave the decision that if a contractor found that a part had been left out in a bill of quantities it would be an error, and redress could be obtained, but that if the whole had been omitted, he could not, as that was not an error—and all that need be done was to write to the Council of the Association asking for redress if the quantities were inaccurate. There was no delay and the Council acted in the matter at once. The Council, consisting of men who had been in practice for from twenty to forty years, some of them employed by architects, some by builders, some by both, formed the most competent tribunal to decide such questions in or out of London. As to a proper form of contract, they were obliged for the suggestion, as they were for any suggestions which were for the good of the profession; but he did not think the time was ripe for dealing with the existing contract. The contract which was in existence was as fair a contract as could be arranged on the present lines, and he did not think there was any great dissatisfaction with it. Still, he understood Mr. Hudson's point, and it was a ridiculous thing to go on tendering as they did daily. It was nonsense to tender and undertake to execute a building according to the quantities, and surveyors would be the last to wish any

buildings to be so executed, as it would be a bad day for them if they could have no more extras and omissions. He thought that when the revision of the present building contract form was desired, builders would have to take the first step in the matter, and quantity surveyors would be pleased to co-operate if possible. Referring again to the Surveyors' Institution, the President said that that body had had a charter granted them to uphold the status of the profession, and to regulate its customs and usages. A number of members of the Association, who were also members of the Institution—for the Association was not an opposition body at all, but members of a profession desiring that their interests should be carefully watched—called a protest meeting to be held at the premises of the Institution, under their right to do so as members, and they issued a circular of suggested charges that public bodies should pay for work. Well, the meeting was held, but the room was packed with auctioneers, land agents, and others, and not one of the professional journals was represented. Of course, the proposals he and others made were defeated, but they were able to express their opinions, and they referred to the charter and the abuses of it, and called upon the Institution to remedy the evils; but not one word of that was allowed to be printed in the *Transactions* or *Notes* of the Institution, although the official shorthand writer of the Institution was present at the meeting. The Institution presumably did not like them to have a scale of charges, and so they issued a circular themselves, deprecating the low scale of charges made by members, and they expressed the wish that it should be stopped, but they did not issue a scale of charges as they might have done. The Institution, in its circular, said that the competition of the kind which took place tended to reduce the charges of surveyors and lowered the status of the profession; but a little job costing 20,000*l.* was put up to competition, and a Fellow of the Institution offered to do the work for ½ per cent.! He wrote to the President and asked him if he would bring the matter before the Council, and the reply he received was to the effect that it was the policy of the Institution to allow members to charge what they like! That from an Institution which had a charter to improve the status of the profession and regulate charges and practices!

Mr. W. R. Hood, F.S.I., Vice-President, then proposed the toast of "The Architects." He said that they looked to architects to help the Association in every way they could. The relationship of the quantity surveyor to the architect was a very close one, and one which he hoped would become more and more friendly. Quantity surveyors were the practical advisers of the architects, but the two professions ought to be kept separate and distinct. An architect who was trained from his youth, and was able to give sway to his natural abilities, and so build up for himself a lasting memorial of an artistic career, was to be greatly envied. As to the form of building contract, he thought that the existing one, approved by the Royal Institute of British Architects and the Institute of Master Builders, was one which could be adapted to almost every requirement which could be imagined. In both the professions of architecture and surveying there was room for improvement, especially in the matter of the education of the architect. In the examinations of the Royal Institute of British Architects there was room for artistic development, and it seemed to him that insufficient importance was placed upon the necessary artistic talent of the rising architect, for so many had no artistic talent at all. Architecture was a gift, and he should like to see the Institute give more attention to the training of that gift.

Mr. A. W. S. Cross, M.A., in reply, referred to the fact that for a certain number of years he had, as a young man, carried out quantity surveying work. At that time most provincial architects took out their own quantities, and they were usually very weird productions indeed, but happily those days had long passed away, and now there was more and more a tendency to employ for public works only those who were properly qualified to prepare quantities, and that was as it should be. They would have to face a few years hence the difficulty of the provincial architect, in a small country town. Many an architect to-day could scarcely make a living unless he prepared his own quantities, and they would have the provincial architects against them if they tried to close the profession, though, for his part, he thought the profession should be closed. He understood that the Association was endeavouring to co-ordinate the system of measuring and the system appertaining to the two parts of England—north and south—so as to bring them into uniformity, and he was sure that every architect would wish them success in that direction. To those who knew something about quantities as practised in the south of England, it was astonishing to see a bill of quantities emanating, say, from Manchester, containing some such item as labour to brick work in hollows. He was struck when first he went to Manchester with the great difference in the way in which the trades were measured, and the curious arrangement of trades. He could not find his way about a northern surveyor's bill of quantities. Their Association had many sympathisers amongst members of his profession, and some of them might be able to help in various ways, and in helping to put quantity surveying on a more satisfactory basis.

Mr. H. T. A. Chidgey then proposed the toast of "The Contractors," coupled with the name of Mr. F. L. Dove, L.C.C., President of the London Master Builders' Association. He referred to the good relationship existing between surveyors and contractors, and said that we had got a long way past the days when builders and contractors and surveyors used to consider themselves natural enemies. He sometimes thought that a builder must be a sort of Napoleon; he had to be a master of strategy, he had to deal with many diverse interests, and to bring them together and to make his job work out at a profit—an increasingly difficult task.

M. F. L. Dove, in response, said that, as a rule, when there was a bad builder on a job there was a bad architect, and, nine times out of ten, there was no quantity surveyor, good, bad, or indifferent. All this was generally the fault of the public asking for a thing one-third or more below its value, for there were always men ready to supply what was wanted. They could not get real competition without putting equal men against each other, but the system had grown up in recent years of putting a decent contractor against the riff-raff of the trade, which was much the kind of thing that quantity surveyors were beginning to suffer from. Builders were long-suffering, but surveyors were evidently not inclined to submit, and he was glad that that was so. If competition were carried on between them as it had been, they would soon find someone offering to do work at 1-32 per cent., and if they could return to the old 2½ per cent., no one would be better pleased than contractors. As to the form of contract, although it contained a good deal that they did not like, taking it all in all, and provided they had a decent architect and a client who was not a rogue, it answered pretty fairly. What was exercising the minds of contractors at the present time, and a direction in which they thought the law required alteration, was as to guarantees. The last year or two the custom had developed of requiring guarantees and bonds on the part of contractors. Speaking for the master builders, he could say that they did not see the necessity for that bond, there always being a large reserve held in the hands of the contractor. But there was one alteration urgently needed, viz., the protection of the builder against the impecunious client—and an alteration there would have to be before long—in regard to the bankruptcy of clients. Where a man was carrying out a large contract and the client became bankrupt, the contractor should have a first charge on the work he had executed before the ordinary creditors. Not only did the contractor lose the work done, but his plant, etc., as well, and though his firm had not suffered much in that way, others had. That was a direction in which contractors required an alteration in the law.

Mr. Walter Lawrance, Past-President, suitably proposed the last toast, *i.e.*, "The Visitors," coupled with the name of Mr. J. Howard Colls, who said that in his early day quantities had to be written out; then lithography came in, and the result was that the area of competition had been enormously enlarged. Builders wanted accurate quantities; they did not want quantities full or short. The ideal of a bill of quantities was that which expressed in words everything they wanted to know. There should be no actual necessity for seeing the drawings for the purpose of preparing an estimate. The early quantity surveyors—the pioneers of about 1850, about which time the quantity surveyors' profession was first established—prepared quantities which were absolutely perfect. Take a mason's bill in those days; all the labours were taken out, but now it was the custom to say: "Stone and all labours." He thought that the labours of stonework should be taken in every bill of quantities, as they formed a guide, even if not priced in detail. He agreed that the architectural profession and the surveying profession should be kept absolutely distinct.

The proceedings then terminated.

THE ARCHITECTURAL ASSOCIATION SUMMER VISITS:

I.—ROTHAMSTED, HARPENDEN.

THE summer visits of the Architectural Association began on Saturday, April 27, and a very pleasant afternoon was spent at Rothamsted, an Old English house, comparatively little known, but of remarkable interest. The house, standing in a park and screened from public view, has a continuous history of progressive development, each stage being written clearly in the works and materials of the successive builders.

A XIIIth century deed gives information of the existence of a dwelling on the site, and the visible remains show an early timber and plaster house prior to a large extension in brick in the XVIth century, probably by the family of Bardolph, the owners at that time. The Cressy family next became possessed of the estate, but sold it in 1635 to the mother of Sir John Wittewronge, whose family from Flanders had previously settled in this country. Marriages again changed the names of the owners, in the XVIIIth century the Bennets, and later to the Lawes family; the present owner, belonging to the latter, has assumed the early Wittewronge title.

The oak posts and beams in the hall are some of the remains of the original house, and the position and varied spacing of the uprights suggest enlargement in early times. Brick is the material used in the external walls, gables, and chimneys, and an interesting series in colour and thickness illustrate clearly the various periods and extent of the respective changes.

The principal or south front is of XVIth century date, and has four shaped gables with small moulded brick pediments, together with moulded brick cornices. A brick bell-tower rises above the porch in the centre of the front, and is finished with a lead-covered clock turret. The glazing is of the customary leaded glass, but the oak window frames are unfortunately painted a stone colour, and is the only jarring note in the fine effect.

The interior has great wealth of interest, although the plan is one belonging to no definite type. The rooms, almost without exception, are panelled in oak to a considerable height, in which a charming variety of the "linen fold" pattern is introduced. Some XVIth century painting has been covered up by the panelling in the dining-room; here also the modelled ceiling is an excellent specimen of Elizabethan plaster work. Two fine oak staircases and some richly-carved chimneypieces are admirable of their kind. The furniture throughout is no less interesting, and is, generally speaking, of the periods of the house. The pieces are all of unusual character.

Some extensive and ambitious additions have been made to the house in imitation of the original work, and the idea of deceiving the eye is very successful, although, as the owner admitted to those members who attended the visit, it may not be considered architecture.

NEW SCHOOL, KIRKCALDY.—A new school has been erected by the Burgh Board of Kirkcaldy in the Balsusney-road district. Mr. J. Forbes Smith, Kirkcaldy, was the architect. About 1,000 pupils can be accommodated in the building, which has cost 9,000*l.*

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, S.W., Mr. H. P. Harris, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend Bermondsey Borough Council 9,357*l.* for electric lighting, and Woolwich Borough Council 1,925*l.* for street improvements.

Tramway Works.—The Highways Committee recommended, and it was agreed, that the supplemental estimate of expenditure on capital account of 53,000*l.*, submitted by the Finance Committee, in respect of alterations to pipes and mains, etc., in connexion with the reconstruction of the Westminster to Wandsworth, etc., tramways, for electric conduit traction, be approved.

Coopers' Company's School.—The Education Committee recommended, and it was agreed :—

"(*a*) That the plans submitted by the Governors of the Stepney and Bow Foundation for the reconstruction of the Coopers' Company's School (Mile End), towards the cost of which the Council on July 31, 1906, conditionally offered to make the Governors a special building grant of 1,000*l.*, and also to consider favourably the question of the payment of an equal amount in respect of each of the nine years following, be approved.

(*b*) That the Governors of the Stepney and Bow Foundation be informed that it is desirable that in the scheme for the administration of the schools of the Foundation the alterations indicated in the foregoing report should be carried out."

Coroner's Court and Mortuary for the Poplar District.—The Public Control Committee recommended :—

"That the freehold site at High-street, Poplar, be approved as a site for a coroner's court; that the site be acquired from the Poplar Metropolitan Borough Council for the sum of 1,325*l.* subject to the Borough Council undertaking, in the event of the Council proceeding with the erection of a coroner's court on the site in question, to erect on adjoining ground a proper mortuary and post-mortem room as required by sect. 88 of the Public Health Act, 1891."

The recommendation was agreed to.

List of Rates of Wages and Hours of Labour.—The Works Committee reported as follows :—

"An agreement has been arrived at between the London Master Builders' Association and the London Mill-Sawyers and Wood-Cutting Machinists with regard to the hours of labour of such machinists, and the Council's list should be altered to bring it into accord with the agreement. We recommend :—

"That the Council's list of rates of wages and hours of labour be amended so as to provide that the hours of labour and rate of pay for overtime on week days, except Saturdays and Christmas Day, of mill-sawyers and wood-cutting machinists shall be as follows :—

Hours of labour per week.		Rate of pay for overtime when worked at request of employer.	
Summer.	Winter (13 weeks after second Monday in November).	One hour from leaving off time.	Thereafter to 10 p.m. (or time worked before 8 a.m. during 13 winter weeks).
50	44	Ordinary rate.	Time and a-quarter.

Workmen engaged on a night gang to be paid 1d. an hour in addition to ordinary rate."

The recommendation was agreed to.

Manor Asylum—Enlargement of Needle-room.—The Asylums Committee reported as follows :—

"The additional buildings to be erected at the Manor Asylum under the vote of 22,000*l.* comprise two new blocks and staff quarters. In consequence of the enlargement of the asylum it is now necessary that the present needleroom, which accommodates thirty-five persons, should be enlarged to accommodate ninety persons. The estimated cost of this work, which would be carried out by workmen employed directly under the asylum's engineer, is 990*l.* The amount of the tender for the erection of new blocks and staff quarters accepted in November, 1906, was only 13,237*l.*, as against the quantity surveyor's estimate of 16,870*l.*, on which the Council's vote was based; so that there will be a saving on the estimate of over 3,500*l.*, and a corresponding unexpended balance on the vote, from which the cost of enlarging the needleroom can be defrayed."

They recommended accordingly, and it was agreed.

Displacement of Persons of the Working Class.—The Housing of the Working Classes Committee reported as follows :—

"On November 6, 1906, we reported on the subject of the displacement of persons of the working class in connexion with the development of private property in the metropolitan boroughs of Lambeth and Stepney and the City of Westminster, and we now desire to draw attention to clearances effected or about to be effected in the metropolitan boroughs of Islington, St. Pancras, Southwark, and Stepney.

In Islington twenty-seven houses containing 153 rooms in Swanley-street are about to be demolished. The displacement of about 210 persons of the working class is involved, and it is proposed to utilise the site for the purpose of extending the Agricultural Hall.

As regards St. Pancras we are informed that a site fronting on the west side of Tottenham-court-road, and bounded by Warren-street, Whitfield-place, and Fitzroy-court, is being cleared. The site contains fifteen houses and shops and two blocks of working-class dwellings, and the clearance involves the destruction of 264 rooms and the displacement of about 475 persons of the working class. It is proposed to erect shops and warehouses on the site.

In Southwark thirty-nine houses in Angel-place, Webber-street, and Valentine-place, to the west of Blackfriars-road, are in course of demolition, and it is proposed to utilise the site for the erection of warehouses and the extension of an adjoining factory. The clearance involves the destruction of 106 rooms and the displacement of about 167 persons of the working class. In Content-street, Rodney-road, and Larcom-street, to the south of New Kent-road, eighteen houses, containing ninety-four rooms, have been demolished, the site having been acquired by the Governors of the Bank of England for the erection of a record office. About 155 persons of the working class have been displaced.

In Stepney twenty-two houses, containing 138 rooms, are being demolished in Jubilee-street, Lindley-street, and Adelina-grove, on the south side of Mile-end-road. The demolition involves the displacement of 204 persons of the working class, and it is proposed to erect working-class dwellings upon the cleared site.

The clearances in the four metropolitan boroughs involve the demolition of 121 houses and two block dwellings containing 755 rooms, and the displacement of about 1,211 persons of the working class. In place of 138 of these rooms, working class dwellings will be erected, but on the sites of the remaining 617 rooms occupied by about 1,007 persons of the working class, business premises will be erected, and no provision made for the persons displaced."

The Works Committee and the Northern Low-level Sewer.—Mr. Ernest Gray moved, and the Hon. W. R. W. Peel seconded, the following motion :—"That so much of the resolution of February 5, 1907, as relates to the reference to the Works Committee for execution of the work of constructing the portion of the northern low-level sewer No. 2 between Stepney and Trafalgar-square, be rescinded; and that it be referred to the Main Drainage Committee to arrange for the issue of an advertisement inviting tenders for the work."

Mr. Gray, in moving the resolution, contended that the question of whether the Works Committee carried out work cheaply or not depended, in such cases as the present, on the accuracy of the engineer's estimates, and he quoted several cases in which the engineer's estimate had been found, according to him, to be at fault to a serious extent. In the case of five works thrown open to public tender, there had been a saving, based on the engineer's estimates, of 185,846*l.* In the case under discussion the engineer's estimate of 297,000*l.* might be equally at fault. He was told that the Works Committee had their hands full at the present time, having, in fact, work to the extent of 1,400,000*l.* He did not believe in the Council being a great trading concern, and he was in favour of private enterprise, though he thought that the Department should have the work if they could carry it out at a lower price than the contractors.

The Hon. W. R. W. Peel said that the motion was in favour of free and open work, as against private monopoly. The saving of the contractor's 10 per cent., which used to be talked about, was now admitted, he thought, to be a figment of the imagination of the Progressive members.

Mr. McKinnon Wood said that the starving of the Works Department would not result in the economy the Moderate Party said they were concerned about. The Department was set up to break down the ring of contractors which undoubtedly existed at the time of the construction of the York-road sewer, and the Department should be kept going in order to prevent the formation of another ring. As to the value of the work the Works Department had in hand, much of the work referred to by Mr. Gray was partly finished. It did not follow that because the engineer's estimate did not accord with the contractor's tender that the engineer was at fault. In sewer work there was much uncertainty—uncertainty which did not exist in the case of ordinary building work. Take the case of tenders obtained from competent builders and contractors! They showed an enormous difference, and he quoted several instances of this. He had heard no reason why the work in question should be taken away from the Department, especially as it was work which they succeeded in very well. It would be cheaper to abolish the Department altogether than to wreck it in the manner proposed.

Mr. Sanders said it had been published to the world what the engineer's estimate was for the work in question, and he contended that if the work was taken away from the Department it would be a serious breach of faith.

Sir M. Beachcroft said he thought that this particular work was, in all the circumstances, just the sort of work to put out to tender. He hoped to see the Department in the course of time reduced to proper proportion, and yet kept up to such a level as to prevent the formation of a ring of contractors.

Mr. H. Ward said the Department had a large staff and a great deal of machinery, and they had now come nearly to the end of works of this kind they had in hand. As to whether the Department should tender with contractors, did any other public body or Department practice anything of the sort? He did not know of any such case, and he thought it would be unwise or unnecessary to make the Department compete with the contractors in the manner proposed. In speaking of the conditions which contractors objected to fourteen years ago, and which, it was alleged, led to the formation of the ring of contractors, he said that those conditions had been adopted by nearly all public bodies. This low-level sewer was the sewer which would pass near St. Paul's Cathedral, and it was surely, for that reason alone, better that the work should be carried out by the Council.

Mr. F. Dove said he thought that that was a reason why the work should not be undertaken by the Department, as there might be heavy contingent liabilities. He was convinced that the Council would do far better to adopt the motion than to spend—goodness knew what, and he did not see why the Department should not go into the open market and compete with the contractor. As to the suggestion of the contractors' work being scamped, if it ever was scamped the fault for that rested on those who did not exercise proper supervision, and he suggested that even the work executed by the Department might have been scamped.

Mr. E. Smith quoted certain works carried out by the Department and contractors since 1900—work of the same character, carried out under the same conditions—and he said that the result showed that the Department had been paid 21½ per cent. below the engineer's estimate, while the contractors had been paid 15½ per cent. less than the estimate. He believed in the employment of private enterprise side by side with the Works Department, as one would exercise an important influence over the other. He could not imagine a worse case for an attack on the Department than the case under discussion, and he thought that a much better one could be selected. He believed that the policy of starvation had been decided on. If they were going to shut down the Works Department, they must dismiss the staff, and he hoped they would face that.

Mr. E. White said that the engineer's estimate had been published in the minutes many months ago. Mr. Smith had had to select his cases to show that work was carried out cheaper by the Department than by the contractors. He thought that it was a useful thing for the Council to have its own Works Department, but that Department could not carry out all the Council's work. The market should be tested by putting work out to tender. He protested against the abolition of the Works Department, but he wanted to see it put on a proper basis, and he hoped to bring up some recommendations which would secure that.

Mr. Will Crooks, M.P., said that if the work was taken away from the Department, it would lead to the introduction of another set of men into London, as naturally the contractor would select his own men to do the work.

Sir J. Williams Benn, M.P., said that if

the Department was to be closed, it should at least be closed so as to secure the best results, in the way of the disposal of plant, etc., to the ratepayers.

A motion to adjourn the debate having been lost.

Mr. Howell J. Williams moved that "the Council do now adjourn," but the Chairman took the motion of Mr. R. A. Robinson that "the motion be now put." On a division there voted: for, seventy; against, forty-two. A division on the main question was then taken, as follows:—For Mr. Gray's motion, sixty-nine; against, forty-one.

Mr. Howell J. Wiliams then moved that the Council adjourn, as a protest against the manner in which the debate had been conducted, but the motion was defeated, and the Council proceeded to deal with unopposed business.

The Council adjourned at 9.30 p.m., having sat seven hours.

APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

THE London County Council at their meeting on Tuesday dealt with the following applications under the London Building Act, 1894. The names of applicants are given between parentheses:—

Lines of Frontage and Projections.

City of London.—Retention of plate-glass tablets on the face of the pilasters in front of the first stories of Nos. 1 and 2, Old Jewry, and Nos. 39 to 42, Poultry, City (Messrs. A. D. Smith & Sons).—Consent.

Hammersmith.—A one-story shop in front of No. 158, Uxbridge-road, Shepherd's Bush (Mr. W. C. Jordan).—Consent.

Norwood.—Projecting porches in front of Nos. 1 to 63 (odd numbers only) inclusive, Danecroft-road, Norwood (Mr. W. C. Goddard).—Consent.

St. Pancras, South.—A projecting iron and glass shelter in front of the University Hotel, Endsleigh-gardens, St. Pancras (Messrs. Collcut & Hamp).—Consent.

Strand.—The retention of three swing cranes at Messrs. Spalding & Hodge's premises, Russell-street, Strand, two of such cranes abutting upon Drury-lane and one upon Crown-court (Messrs. Redfern & Hunt for Messrs. Spalding & Hodge, Ltd.).—Consent.

Strand.—Two shelters at No. 10, St. James-street, one to abut upon King-street and the other upon St. James-street (Messrs. Jones & Willis, Ltd.).—Refused.

Width of Way.

Islington, South.†—An addition to the Royal Agricultural Hall on the site of Swanley-street, Islington, and at less than the prescribed distance from the centre of the roadway of St. John's-place (Mr. J. Jeffrey for the Royal Agricultural Hall Company, Ltd.).—Consent.

Line of Frontage and Space at Rear.

Kensington, North.—A deviation from a plan approved for the erection of dwellings on the south side of Kenley-street, Notting Hill, so far as relates to (*a*) the alteration of the position of the bay-windows at the side of the six blocks of dwellings and (*b*) the addition of a small one-story wash-house at the side of each block (Mr. A. R. Finch for the Kensington Royal Borough Council).—Consent.

Space at Rear.

Kensington, South.—Modification of the provisions of sect. 41 of the Act so far as relates to the proposed erection of an addition to the Roman Catholic Church of Our Lady of Victories, Kensington High-street (Mr. E. Goldie).—Consent.

Lewisham.—A modification of the provisions of sect. 41 with regard to open spaces about buildings, so far as relates to the proposed erection of No. 109, Newlands-park, Lewisham, with an irregular open space at the rear (Mr. W. Frampton).—Consent.

Lines of Frontage and Construction.

Clapham.†—The retention of a temporary show-case in front of No. 76, Clapham-road, Clapham (Messrs. Norton, Smith, & Co.).—Consent.

Height of Building.

Whitechapel.—A warehouse building on the north-eastern side of Leman-street, Whitechapel, to exceed 80 ft. in height (Mr. F. E. L. Harris for the Co-operative Wholesale Society, Ltd.).—Refused.

Formation of Street.

Wandsworth.—That an order be issued to Mr. H. G. Hills, sanctioning the formation or laying out of two new streets for carriage traffic in continuation of Headworth-road and Burtop-road, Wandsworth (for the Wandsworth Metropolitan Borough Council).—Consent.

Alteration of Building.

St. George, Hanover-square.—A modification of the provisions of sect. 77 of the Act, so far as relates to the formation of an opening, to be fitted with armoured doors, at the ground floor level, in the party wall between No. 1A, Albemarle-street, St. George, Hanover-square, and a staircase leading to the upper floors of No. 1, Albemarle-street (Mr. F. T. Verity for Messrs. Gresham, Barber, & Co.).—Consent.

Dwelling-houses on Low-lying Land.

Bermondsey.—That a licence be granted under sect. 122 of the Act to Mr. T. Sloman, for the erection of five dwelling-houses on low-lying land situated at Lynton-road, Bermondsey.—Consent.

The recommendations marked † are contrary to the views of the local authorities.

Architectural Societies.

EDINBURGH ARCHITECTURAL ASSOCIATION.—At a meeting on the 24th ult. of the Edinburgh Architectural Association, in the Geographical Society's Lecture Hall in the National Portrait Gallery, a description of the architectural features and other points of interest in connexion with Holyrood Chapel was given by Mr. Hippolyte J. Blanc, R.S.A., President of the Association. Before proceeding with the lecture, Mr. Blanc referred to the death of Mr. W. W. Robertson, formerly of H.M. Office of Works, and a former President of the Association. Mr. Robertson, he said, was a member of the Architectural Association from the time he entered the profession, and his work as a member was always much appreciated. Perhaps no more complete or concise monograph of Holyrood Chapel and Palace had appeared than that from his pen, printed in the *Transactions* of the Association. It was agreed that an excerpt from the minutes be sent to Mr. Robertson's relatives.—Mr. Blanc's address, which was almost wholly of a descriptive character, was illustrated by a series of lime-light views from photographs taken and prepared by himself. Before showing the lantern views Mr. Blanc gave a *résumé* of the history of the Chapel. He then illustrated in detail the present condition of the Chapel, and, explaining the architectural characteristics of Scottish abbeys and cathedrals, showed plans of two English abbeys—Hayles, in Gloucester, and Halesowen, in Worcester—which he believed were somewhat similar to what Holyrood was. Beginning with the oldest part of the Chapel, the Norman door, he proceeded south, and illustrated several bays of the cloister, and afterwards showed south-eastern and northern views of the edifice. Photographs of some old prints of the Chapel were next shown, and then details of the tower and of several of the bays in the north aisle. Other views included photographs of the interior, sections of the north aisle as seen from the gallery at the west end, and the south wall of the nave, which is 4½ ft. thick. In connexion with the south wall of the nave, Mr. Blanc showed the deviation from the straight line which occurred when the roof gave way in 1768. That deviation, he explained, is about 14 in., and was caused by the fall of the mass of masonry which formed the roof. Mr. Blanc, illustrating the south aisle, explained the changes of architectural style expressed in that aisle, and traced the change from the semicircular to the pointed arch. Reproductions were given of a drawing by Kemp, the architect of the Scott Monument, showing a suggested restoration of the interior of the Abbey, and of a print of about the date 1687, showing the Chapel fitted up as a Chapel for the Knights of the Thistle. While not entering into any questions connected with the proposed restoration of the Chapel, Mr. Blanc, in directing attention to the beauty and interestingness of the details of the Chapel as it now stands, said that if any restoration were undertaken strict care ought, he thought, to be taken to leave the existing features undisturbed.—On the motion of Mr. J. T. Aitken, seconded by Mr. Thomas Ross, and supported by Professor Cooper, Mr. Blanc was accorded a vote of thanks for his description and illustrations of the Chapel.—At the annual general meeting the following office-bearers were elected for the session 1907-1908:—President, Mr. Hippolyte J. Blanc, R.S.A.; Past-President, Mr. H. O. Tarbolton, F.R.I.B.A.; Vice-Presidents, Mr. W. T. Oldrieve, F.S.I., F.R.I.B.A., and Mr. John M'Intyre; Hon. Secretary, Mr. Colin B. Cownie; Hon. Treasurer, Mr. W. Glassford Walker, C.A.; Hon. Librarian, Mr. John Watson, F.R.I.B.A.; Hon. Assistant Librarian, Mr. Jas. A. Arnott. Messrs. Alfred Greig, A. Hunter Crawford, F.R.I.B.A., and Victor D. Horsburgh, A.R.I.B.A., were appointed members of the Committee of Management.—The prizes in students' design competitions were awarded as follows:—Design for a bank: 1, D. M. Kinross, prize of 5*l.* 5s.; 2, T. Linton, 1*l.* 1s. Design for a porch: 1, S. G. Follett, 3*l.* 3s.; 2, W. S. Walker Todd, 1*l.* 1s. Design for a board-room: 1, A. W. Graham Brown, 3*l.* 3s.; 2, T. J. Beveridge, 1*l.* 1s.

Archæological Societies.

NEWCASTLE SOCIETY OF ANTIQUARIES.—At a meeting of the Newcastle Society of Antiquaries held on the 24th ult., in the Old Castle, under the chairmanship of Mr. Richard Welford, Mr. J. P. Gibson referred to the work of excavation which had been undertaken by Mr. F. Gerard Simpson, a member of the Society, at the camp at Haltwhistle Burn, which lay across the military way. Mr. Simpson had worked a fortnight and had secured great results. The camp was found to be very striking in its appearance. The ramparts and the ditch were very marked. Immediately contiguous to it were three large marching camps. Two of them had traverses before the gates, showing that there had been considerable military occupation from time to time. The camp was on the line of the Stanegate and had been there before the latter was made. He fancied the approach had been made from the East, and was probably in the time of Agricola. It was possibly one of the earliest camps they had in Northumberland. The excavations had included almost the whole of the outer ramparts of the camp. The great peculiarity of the camp was the gateways. Instead of their being represented with towers on each side there were huge semi-circles which were not to be found elsewhere in the North of England. The work had been done in splendid fashion, and he hoped it would be continued so that they might have a complete plan of the camp.

Books.

Meister der Innen-Kunst. I. (Darmstadt; Alex. Koch. London; E. Grevel & Co.)

AS THE text in this folio with the German title is English, we presume it represents the English edition of a twin publication carried on in England and Germany simultaneously: so far, it seems to be a German publication dealing with the work of English, or at least of Scottish, architects. The Innen-Kunst, or art of the interior, is only represented in this first volume by two houses, one by Mr. Baillie Scott, and the other by Mr. Mackintosh, of Glasgow, whose name is not familiar to us, but whose design is the subject of a descriptive article by Herr Muthesius, who regards it as representative of what he calls the Glasgow School of Scottish house architecture. Both houses are illustrated by plans, perspective views, and interiors shown in coloured plates. If Mr. Mackintosh's work represents "the Glasgow school" of house architects, we can only hope that their efforts may at least be confined to their own neighbourhood. The exterior view of the house, a shapeless white mass, relieved against a strongly-lined sky, looks like a nightmare; the interior detail is that of "art nouveau" *in excelsis*—or perhaps one might rather say *in extremis*. Anything more hideous than the decorative details of this "Haus eines Kunst-Freundes" it would be difficult to imagine; and if there are really people who like to live in such a house, they might at least have kept the fact to themselves. The interiors in Mr. Baillie Scott's house, though we think the studied simplicity and absence of any traditional form of architectural treatment is itself a kind of affectation, are much more reasonable and agreeable, and the plan, which may be said in its main lines to consist of two squares set diamond-wise and partially overlapping each at the meeting line, contains some interesting points in internal planning, and would be a pleasant

sort of house to live in, in spite of a good deal of crude planning and wasted room in passages. The domed octagonal bath-room, with the circular bath in the centre and the "shower," as described, falling from the centre of the dome, should be charming, and serves to remind us how much more attractive an apartment a bath-room might be made than is generally the case. The general form of the plan has, we think, been long ago suggested by Mr. Prior, in a model which he exhibited at the Royal Academy. There are some very bad points in the planning in detail; for instance, the long passage in two lengths from the "men's room" to the lavatory and water-closet by the hall door, by which they would have to pass between the serving-room and the open colonnade of the dining-room; a "men's room," which means generally a morning-room and smoking-room, should have its retiring-room near at hand and separate from the rest of the house. On the first floor we notice that the breakfast-room (which, by the way, must be very insufficiently lighted) opens out of a short passage on the other side of which open a bath-room and water-closet—an arrangement really offensive in its unsuitability; and in the Guests Suite there is shown bath-room and water-closet in one room, which is abominable. We have nearly always noticed that the architects who profess to be in a special sense "artistic" in their house designs do not know how to arrange things of this kind so as to promote decency and comfort of living; they should really study these practical points of planning first, before striving to be artistic. We grant that this house would have the same kind of interest which one often finds in an old rambling country house, where you go up and down unnecessary steps and along unnecessary passages; but we find in it also the inconvenient and primitive arrangements of old houses, which are put up with in them because they are old houses, but which people do not expect and are not inclined to put up with in modern houses, which ought to be planned in accordance with modern ideas of comfort and decency. We observe that there is no north point to the plans, which is a serious omission. Mr. Baillie Scott has no doubt succeeded, in this and other designs, in getting beyond the commonplaces of house designing, for which one may be grateful to him; but it ought to be possible to do that without planning them in an uncivilised manner.

We should add that the publication, so far as it has gone, is got up in a most sumptuous manner, and the plates admirably executed.

A Manual of Historic Ornament Treating upon the Evolution, Tradition, and Development of Architecture and the Applied Arts. Prepared for the use of students and craftsmen by RICHARD GLAZIER, A.R.I.B.A., Head Master of the Municipal School of Art, Manchester. Second Edition, Revised. (London; B. T. Batsford; 1906.)

THE second edition of Mr. Glazier's manual of "Historic Ornament" shows considerable amplification of matter and illustrations in the important subjects of architecture and the applied arts. The threefold objects of this manual are to give an elementary knowledge of architecture and historic ornament in their proper relation; to awaken an intelligent interest in the beautiful remains of ancient and mediæval civilisation; and to show their intimate relation to the life of the people and period which produced them. These points are brought out and presented to the reader, both in the letterpress and illustrations, in such a way that the work of the past has a vitality and freshness for craftsmen of the present day. Such, indeed, should be the end aimed at in all books of this class; our study of the past in buildings, or books, or museums should help us to a proper appreciation of the place and purpose of all arts. Until the student gets behind the barriers of the so-called "styles," and realises that the art of any particular period was the expression of the life of that period—not a matter of invention or conscious choice on the part of the artists who worked on it—he cannot enter into the heritage of the past. He must realise that Greek art was the expression of Greek life, and that Gothic art was the expression of mediæval life. The attributes of both are the natural outcome of the ideals—social and religious—of the people, the one a worship of the physically beautiful and perfection for its own sake, the other a love of the mysterious and romantic. No doubt modern conditions are much more complex and difficult, but art is the same to-day as it was in the past, and will find expression in spite of all obstacles if the artist has the root of the matter in him. The first duty of the student is to familiarise himself with the work of the historic periods; it is essential to understand what has been done before attempting original work. Mr. Glazier's volume is on the lines that should appeal to the student, and make the study of "Historic Ornament" of real benefit and value to all students, even to those who only take it up as part of a curriculum.

Practical Stencil Work. Illustrated. By FREDERICK SCOTT-MITCHELL. (London: The Trade Papers Publishing Company, Ltd. 1906.)

MR. SCOTT-MITCHELL is the author of "Practical Gilding," the first volume in "The Decorator" series of practical handbooks. "Practical Stencil Work" is the second in the series. As lecturer on decoration to the City and Guilds of London Institute and the London County Council Mr. Scott-Mitchell speaks with authority on the practical side of his subject. Owing to the very general adoption of self-coloured and distempered walls, stencilling has come very much to the fore in recent years. The operations, step by step, are described in this handbook, as well as the differences of surface and material to which the work may be applied. One chapter is devoted to tools, another to paints, inks, and dyes, and another to lettering and the care of the stencils.

The illustrations are above the average in this class of work, for hitherto the standard of artistic ability in this decoration has not been high. It would be well if students could have before them the very best examples, such as the work done by Mr. Walter Crane, Mr. Heywood Sumner, and Mr. Lewis Day, as well as classic examples. The standard set before them cannot be too high, or the training in the elements of design too severe. The chapter on designing and the examples illustrating it are the least successful part of this useful work.

The London Building Acts. By the late PROFESSOR BANISTER FLETCHER. Fourth Edition by BANISTER F. FLETCHER, F.R.I.B.A., and H. PHILLIPS FLETCHER, F.R.I.B.A., Barrister-at-Law. (London; B. T. Batsford; 1907.)

THE fourth edition of this useful and very practical work needs no comment except that, after a careful examination, it appears thoroughly up to date. The references to cases reported only in our columns cause a suggestion to arise that all these building cases should be collected in one publication. Legal reports and files of weekly journals have now to be at hand if the practitioner would be, so to say, personally acquainted with the details of all reported cases.

A Handbook to the Workmen's Compensation Act, 1906. By GEORGE FREDERICK EMERY, LL.M., Barrister-at-Law. (London; Bemrose & Sons, Ltd.; Effingham Wilson. 1907.)

IN this handbook, according to the preface, the endeavour of the author has been, in ninety-one pages of text, to lay before his readers, be they employers or employed, officials of insurance companies, medical men, managers of departments, members of committees, or arbitrators, "all that it is necessary for them to know relating to the Act," but we cannot say that the work accomplishes such an ambitious end. The author has, however, produced a readable handbook which sets out the main provisions of the Act and draws attention to some of the difficult questions involved in its interpretation; and although we cannot agree with all the conclusions set forth by the author (as, for instance, his reading of the Act in relation to seamen on foreign vessels), the handbook contains much useful information for those seeking for some acquaintance with this complex legislation.

BOOKS RECEIVED.

THE LAW OF BUILDING, ENGINEERING, AND SHIPBUILDING CONTRACTS.—By Alfred A. Hudson, Barrister-at-Law. Third Edition. Vol. I. (Sweet & Maxwell.)

PAINTING AND DECORATING.—By Walter Pearce. (Chas. Griffin & Co. 12s. 6d.)

COURT OF COMMON COUNCIL.

A MEETING of the Corporation was held at the Guildhall on Thursday last week, the Lord Mayor presiding.

Widening of Broad-street.—It was agreed, on the recommendation of the Improvements and Finance Committee, that an arrangement be entered into for acquiring the ground needed to widen the public way in Old Broad-street, in front of the Church of St. Peter-le-Poer

City of London Cemetery.—On the recommendation of the Sanitary Committee it was agreed that the resolution of February 28 last, accepting the tender of Messrs. Dolman & Matthews for the supply of labour and materials for works at the City of London Cemetery, be rescinded, and that the committee be authorised to carry out such works by their own employés under the direction of the Engineer. It was also agreed to accept a tender of Messrs J. E. Measor & Son for repainting the boundary railings and for executing certain general repairs to the houses and buildings at the cemetery for the sum of 226*l.* 1s. 10d.

The Cattle Markets.—The Cattle Markets Committee submitted for sealing a contract with Wm. Douglas & Sons, Ltd., of Putney, and Messrs. Charles Dearing & Son, of Islington, for the supply of a Podewil Destructor in connexion with the new public slaughterhouses at the Metropolitan Cattle Market at the sum of 1,174*l.* 10s., the item and amount being included in the contract with Messrs. Dearing & Son for the erection of new slaughterhouses, sealed by the Court on January 17 last. The committee also submitted for acceptance the tender of W. Johnson & Co., Ltd., of Wandsworth Common, at 249*l.*, for necessary drainage works to Tripe Houses at the Foreign Cattle Market. The same committee further reported that, as a matter of urgency, works of repair to refrigerating plant attached to the second group of chill rooms at the Foreign Cattle Market had been put in hand at an estimated cost of 434*l.* The Court approved.

Railway Owners' Risk Rate Bill.—A letter was received from the Secretary of the Builders' Merchants and Wholesale Ironmongers' Association asking the Corporation to support the Railway Owners' Risk Rate Bill in Parliament. The letter was referred to the County Purposes Committee.

METROPOLITAN ASYLUMS BOARD.

THE usual fortnightly meeting of the Metropolitan Asylums Board was held on Saturday last week, when the following matters were dealt with:—

East Cliff House.—A letter was received from the Local Government Board enclosing copy of an order authorising the erection of an additional building for the accommodation of the laundry staff at East Cliff House, at a cost not exceeding 580*l.*

Southern Hospital.—A lengthy report was submitted by a Special Committee on the question as to the best use to which the Southern Hospital can be put. There were, in the opinion of the committee, three alternatives, viz.—(1) to make use of the hospital buildings for the treatment of patients suffering from consumption; (2) to use it as an industrial home for the treatment of epileptics; and (3) to keep the hospital unoccupied for a further twelve months, and then reconsider the whole question. A further alternative to close down Gore Farm and use the hospital for fever cases would mean an expenditure of 31,000*l.* on reconstruction, etc. In view of the fact that two Royal Commissions are sitting on questions comprised in the first two alternatives, the committee recommended that the matter be deferred for twelve months.—Agreed.

Long Reach Hospital.—The Hospitals Committee submitted a report by the Engineer recommending that the work for the preservation of the Long Reach Hospital buildings (except certain varnishing of match-boarding) should be placed in hand at once. He advised the treatment of the exterior of the buildings with "sideroleum," the covering of the roofs of the various buildings with corrugated iron, the painting externally of all doors, windows, railings, fire alarms, etc., the taking down altogether of the stove flue pipes and the covering of the outlets with zinc whilst the hospital is out of use, and the fixing of the necessary flashings where covered-way and the annexe roofs joined the sides or ends of the huts.—It was agreed to carry out the work at an estimated cost of 2,200*l.*

Belmont Asylum.—On the recommendation

of the Works Committee it was agreed that repairs, etc., to prevent the old school buildings at Belmont falling into decay be carried out at an estimated cost of approximately between 900*l.* to 1,000*l.*

Quantities.—It was agreed that Messrs. R. L. Curtis & Sons, 11 and 12, Finsbury-square, be appointed to take out the quantities of the new boiler-house, workshop, etc., at the North-Eastern Hospital at a commission of 1½ per cent. on the amount of the accepted tender.

Correspondence.

"GALLERY BUILDING."

SIR,—All Londoners, and architects everywhere, should be grateful to one of foreign nationality for again drawing attention to the deplorable appearance of so conspicuous a public building as the National Gallery in Trafalgar-square, which has been complained of for many years. A leading London architect last called attention to this standing eyesore, and even published designs showing how an amelioration could be effected. Now that criticism appears from beyond our silver streak perhaps something may be done. Some alteration is imminent at the back, by the Office of Works. But the skyline, as seen from the Square and Parliament-street, should be no longer left as it is.

In regard to Mr. Weissman's paper on "Gallery Building," wherein he deals with the general planning and the special lighting of picture-galleries, I may observe that I cannot see that he has carried the science of the first farther than it stood thirty years ago. We already knew, for example, that in all buildings where crowds have to be dealt with it is essential to regulate the passengers so as to avoid either jostling or a block, and that this involves separate access and egress after once passing the main entrance. Picture-gallery crowds differ little from any other, except perhaps in stopping longer to stare. The best sizes of rooms are fairly well known, and are also known to be subject to site and circumstance. We even provide cloak-rooms, umbrella-stands, and some lavatories. The great mass of the minor details given are really common property, true generally, but not new.

As to the second—that of the best way of lighting pictures—he differs from widely-held opinion; and I am myself obliged to say that, although I have sought knowledge at the same Continental sources, and am familiar with the galleries there, my conclusions are different from his.

Some years ago, being sent by the Corporation of Liverpool, I visited (not for the first time) the very galleries abroad mentioned by Mr. Weissman, with the exception of that at Cassel, which, for some unexplained reason, he says "stands unsurpassed." It is much to be regretted that, holding this opinion, he did not rather devote himself to a searching examination into that gallery, describing critically its particular scientific principles, its leading line and skeleton (as surely a French architect would have done), than sketch the more general preferences which guided him when building at Amsterdam.

I found that in all the Palaces, Roman or other, side-lighting prevailed generally. I concluded that it arose not from preference but because other rooms were required above, and therefore no light could be admitted at the top. It was in the majority of cases objectionable. Sometimes, however, one good feature appeared—large pictures were hung, not from the top, but at one side like a door, so as to be moved at will to catch the most favourable angle for light. The aspect seemed to be usually the outcome of chance rather than of deliberate choice. I observed that a side-lighted room always had the following objections:—(1) One side is rendered wholly useless for the display of pictures, being occupied partly by the window and partly by wall in shadow; (2) the depth of the room is limited by the height of the topmost glass of the window; (3) the light, being admitted in a slanting direction, is more or less refracted in its passage through the glass; (4) on the side opposite the window the spectator looks at a picture while standing in his own light.

The drawings exhibited by Mr. Weissman at the Royal Institute of British Architects showed a decided preference for roofs of steep pitch, the bane and despair of the picture-gallery builder, and would naturally lead to another in favour of side-light; for a top-light when brought through a steep roof usually presents the appearance of an architectural imbecility. Perhaps this is the explanation of at least some of the expressed preference for side-light.

Sir Lawrence Alma-Tadema, while admitting that side-light was hardly suited to places like the Royal Academy, prefers it in some cases. And not without reason, although I do not think he paints with the easel at right angles to the light. His own studio is lighted by a vast area of clear plate-glass, placed vertically, high up from the floor and with a sunless aspect. The mere size of the lighting surface would destroy, or at least reduce to a minimum, the evil of refraction. The result is a clear diffused light. I suspect that the idea of Mr. Morgan's gallery in New York was really derived from Sir Lawrence's studio, and not from any foreign source. Such a light extensively used as for a public gallery would require far more height of room, far more glass-area, and much more money than is usually allowed—except by a millionaire; for the whole of the glass must be above the highest hanging-line of the pictures.

Climates vary. It has been said that only in England is sun the friend of man. Certainly throughout Southern Europe it is admitted as jealously as an enemy. The actual quantity of light necessary for pictures must ever vary and depend on the clearness and brilliancy of the atmosphere, or the reverse, and on the mode of admission. But the essential principles remain the same for all, and apply equally to all kinds of pictures. When gravely informed that "for pictures of the Dutch school" one light is preferred to any other, we cry out with some insistance, "Gentle stranger, tell us why?"

I failed to find on the Continent any section of a gallery which I could demonstrate to be entirely satisfactory. The top-light was usually of insufficient quantity or mistaken position. Neither the Louvre nor the Royal Academy convinced me. Returning disappointed through London, I went to South Kensington in no great hope. There, for the first time, I found what I wanted, viz., in the smaller galleries built by Captain Fowke, R.E., and in the evidence of a scientific mind on the subject. The authorities of the museum had themselves thought highly of these constructions, for they issued an unassuming but valuable pamphlet, probably now forgotten. I remember that the chief point was to place the glass in such a position that refraction of light was avoided, viz., at right angles to the lines of light.

The whole subject is as fascinating and complicated in relation to the laws of light as is that of the shapes of ceilings to large halls in relation to the laws of sound. They are cognate, and both deserve to be approached in a more scientific spirit.

As showing that even painters may sometimes be mistaken about lighting, it may be of interest to mention that when building the galleries in Piccadilly of the Institute of Water-Colour Painters I was confronted with the very fallacy as to height which has been revived. Down to the time when the work was nearly finished the painters concurred in the opinion that though the galleries might do for oil paintings, it would be impossible, with the glass so far away to discern the more delicate beauty and different technique on which water-colour depends. Not till the first gallery was actually hung for the exhibition was it found that every part and corner was fully lighted! The bubble was then pricked! Of course, the greater distance needed greater glass-area in relation to floor. It is, here, one-half; and no refraction is caused from any use of horizontal lower lights, so justly condemned by Mr. Statham.

We are a commercial people. And the extreme test of light in a gallery is the practical one of how the pictures sell. I am assured that, judged by that test, the Piccadilly galleries stand highest in London.

Mr. Ruskin told me (while planning his marble gallery for Sheffield) that he considered them "the best lighted in Europe."

I must apologise for the personal note of this letter. It has been unavoidable.

EDWARD ROBERT ROBSON.

Westminster, April 27.

MOTORS AND HEDGEROWS.

SIR,—The motor-car has, no doubt, "come to stay" (and quite right too), but I am entirely with you in thinking that any attempt to compel an Englishman to tamper with his own property is not only a selfish but also a vain thing to try for. Hedges are and will be cut when it is necessary to admit sun to the land, but they will never be wantonly sacrificed merely to aid the passing motorist, who does not own them, and has no jurisdiction over them. If he considers the public they will return the compliment, but so long as he tries to be a mere "road-hog" he will be rightly treated as an adversary. Slowing down is the best way to ensure safety if hedges are too high for him to see his way. They will never be cut for his sole benefit, nor will our beautiful country be other than sorely mutilated if they are. Country ratepayers, especially those who keep no carriage, are quite too sorely taxed already to keep roads in decent order, but those who bear the burden will be the last to submit to a dictation exercise from those who give nothing in aid of their roads, and only use them for their own purposes and pleasures.

It was a sore trouble to me in old days to get ultra-high hedges cut for the sake of keeping the roads dry, but I found that the law of kindness was by a long way the best law by which to get what, after all, was a necessity rather than a pleasure to

AN OLD COUNTY SURVEYOR.

Obituary.

MR. KEMPE.—We regret to announce the death, on April 29, at his London residence, No. 28, Nottingham-place, W., of Mr. Charles Eamer Kempe, of Old Place, Lindfield, Sussex, in his 70th year. Mr. Kempe was the youngest son of the late Mr. Nathaniel Kempe, of Ovingdean, Sussex. He was educated at Rugby and Pembroke College, Oxford, of which he was an honorary fellow, and graduated M.A. Of the more important of his very numerous designs we may mention the following:—Monuments of SS. Jerome, Ambrose, Augustine, and Gregory the Great for the niches under the dome, St. Paul's (1894); east window, St. Ethelburga's, Bishopsgate (an early work); Vice-Provost Wilder memorial tablet, ante-chapel, Eton College; alabaster reredos, of triptych form, St. Chad's Chapel, Lichfield Cathedral (illustrated in the *Builder*, January 15, 1898); east, west, and transept windows, Holy Trinity, Roehampton (*Builder*, October 7, 1899); scheme for filling the five windows of the chancel, Hope parish church, Derbyshire, with subjects from the Passion and the Resurrection; glass in the parish church, and at Old Place, Lindfield, and the chancel screen in the Old Place chapel, which he originally designed for the parish church (1896); reredos and Sir John Tilley memorial window, St. Saviour's, Pimlico; statues for the reredos, Lichfield Cathedral; reredos, Holy Trinity, South Shields; Canon Ainger memorial window and mural tablet, Bristol Cathedral (1905); Dr. Huntingford memorial tablet, with a ground work of gilded copper and green marble, Winchester Cathedral; rood-beam and chancel screen, Otterbourne Church, and the reredos (oak and mahogany) of the Annunciation in the Lady Chapel, Winchester—in memory of Charlotte Yonge; painted rood of the Crucifixion, Titchfield, Hants; Jesse Radix, on west wall, St. John's, Tue Brook, Liverpool (1870); most of the decorative work and embellishment of interior, Copped Hall, near Waltham Abbey; and the cope worn by the Bishop of London at St. Paul's on the occasion of Queen Victoria's Jubilee and at the coronation of King Edward VII., as worked by the Clewer Sisters. Mr. Kempe designed a large number of stained glass memorial windows, including those at Christ Church, Chester (three), and the reredos; Bishop Thorold and the Queen Victoria's Diamond Jubilee windows, Lady Chapel, Winchester; Massinger, Albert, Prince Consort, Alleyne, and Elizabeth Newcomen windows (1896–8); the John Harvard and SS. Swithin and Augustine of Hippo windows; as well as the Chaucer and Cruden windows, and two of three lights in the south transept in memory of the late Henry Wood, St. Saviour's, Southwark; to Bishop Walsham Howe, Wakefield Cathedral; to Jane Austen, Winchester Cathedral; to Dean Goulbourn, Rugby School Chapel (1898); Jubilee window, St. Ann's Chapel, Malvern Priory Church; to Archdeacon Scott, Lichfield Cathedral; to C. P. Colnaghi, St. Michael's, Appleby; the Hay window, Dunblane Cathedral; to Sir William Hunter, Cumnor Church; South African war memorials, Shrewsbury School Chapel, being one of a series of stained glass windows as part of a scheme designed by Mr. Kempe; Malvern College; South Staffordshire Regiment, Lichfield Cathedral; Sherwood Rangers Imperial Yeomanry, East Retford parish church, and St. Ninian's College, Moffatt; Bishop Lyttelton memorial, as part of

a scheme by Mr. Kempe for Selwyn College, Cambridge; to the late Duke of Westminster, Chester Cathedral; to Prebendary Finch-Smith, Lichfield Cathedral; to Lady Kinloch of Gilmerton, Athelstane parish church, N.B.; to Provost Salmon, St. Patrick's, Dublin; east window, with tablet, to the late Duke of Richmond and Gordon, Chichester Cathedral; and to Sarah, Lady Harlech, Hanmer Church. Mr. Kempe made the designs for stained glass in Queens' College, Cambridge; Pembroke College Chapel, Oxford; St. Mark's, Torquay (1891); St. Gabriel's, Pimlico; Grantham parish church; the range of lancets, south aisle, St. Matthias, Stoke Newington; north window of the Sanctuary, Lady Chapel, Winchester; north transept, St. Saviour's, Southwark; east windows, St. John's College Chapel, Oxford (1890), and St. Giles' Church, Cambridge; St. John the Divine, Kennington; three-light traceried window, Marlston Church, Newbury; two in the John Rylands Memorial Library, Manchester; windows given by the Freemasons of Kent to Rochester Cathedral, to commemorate the appointment of (the late) Dean Hole in 1898 as a grand chaplain of the Grand Lodge of England; the south range of aisle windows, St. Alban's, Holborn (1880–1900); two in the choir, St. Mary's, Warwick; east window and seven in the south aisle, St. Michael and All Angels, Ledbury, besides several others. Two years ago Mr. Kempe was deputed to carry out the removal and the re-leading of the late XVth century east window for the lengthening of the chancel, St. Margaret's, Westminster. Mr. Kempe's home at Lindfield, where he made a fine collection of old furniture and glass, was, with its gardens, adapted from an iron-master's house, built in, it is said, the XVth century.

MR. G. HODSON.—We regret to announce the decease of Mr. George Hodson, senior partner in the firm of Messrs. George & F. W. Hodson, consulting engineers, of Loughborough. Mr. Hodson was a member of the Institution of Civil Engineers, a Fellow of the Geological Society, a Fellow of the Surveyors' Institution, a Fellow of the Royal Sanitary Institute, a member of the Association of Municipal and County Engineers, and a member of the Association of Water Engineers. He had made a special study of hydraulic and sanitary engineering, and the firm were concerned as engineers for numerous schemes of water supply and sewage disposal throughout the country, and also had a large professional connexion on the promotion and opposition of Bills in the Parliamentary Committee Rooms, where Mr. Hodson was held in high repute as an expert witness. In his own town Mr. Hodson rendered great service on water supply matters, it being chiefly through his instrumentality that Loughborough secured their Blackbrook watershed, where last year saw the completion of the large masonry dam impounding over five hundred million gallons of water in a lake nearly a mile long. Mr. Hodson has left a widow and family, his eldest son, Mr. Frederic Walter Hodson, M.Inst.C.E., F.G.S., having for many years been in partnership with him.

MR. J. W. DONALD.—The death is announced of Mr. John Wardle Donald, of West Keppel-street, South Shields. Mr. Donald was elected an Associate of the Royal Institute of British Architects in 1888, and he was elected a member of Council, Northern Architectural Association, in March, 1902. He was the architect of "The Britannia" hotel, built in 1898-9, with the principal façade facing Westoe-lane, South Shields; of the mixed school having a central hall and eight class-rooms on each of the ground and first floors, and a gymnasium, cookery class-rooms, and joiner's shop on the second floor, for 1,160 senior and junior children, as well as the infants' schools, in Mortimer-road, for the South Shields School Board, 1900–1; and of the Dean-road public elementary schools for the local Education Authority in the course of last year.

Illustrations.

VICTORIA AND ALBERT MUSEUM, SOUTH KENSINGTON.

THIS drawing illustrates the main entrance to the Museum, and the open lantern over it which marks the centre of the Cromwell-road front.

The whole is faced with Portland stone, and the height is 215 ft. above the pavement.

The figure of Fame on the summit, and the two figures in niches at the base of the lantern, representing "Architecture" and "Sculpture," are the work of Professor Lanteri. The Royal arms and the cartouches are by Mr. W. S. Frith. The figure of Queen Victoria, with those of St. George and St. Michael and of the Prince Consort, together with the figure pateræ in the large arch, and the statues of "Inspiration" and "Knowledge," are by Mr. Alfred Drury. The statues of King Edward VII. and Queen Alexandra are by Mr. Goscombe John, and the two large spandrils of "Beauty" and "Truth" over the arch are by Mr. George Frampton.

The arched entrance leads into a vestibule 40 ft. square 50 ft. high, also faced with Portland stone and with an inlaid teak ceiling. Through this the top-lighted courts are reached, while to the right and left are the staircases and the side-lighted galleries.

Sir Aston Webb is the architect.

THE "TEMPLE" SPEECH-ROOM, RUGBY SCHOOL.

THE new speech-room for Rugby School, which is to be built from Mr. Jackson's design, is to constitute a memorial of the late Archbishop Temple and of his Headmastership from 1858 to 1869.

Contributions from old Rugbeians were invited for this purpose after the Archbishop's death, and they have now reached an amount sufficient to provide a building adequate to the needs of the School.

The present "Big School," built several years ago by Mr. Butterfield, is not nearly large enough to accommodate the school and its visitors at the Speech day or on other grand occasions, and it does not admit of convenient enlargement.

The new room will seat 1,000, exclusive of the platforms, and is specially designed for acoustic effect and for a good view of the speakers or performers from every part of the building.

DECORATIONS OF THE "WEINHAUS RHEINGOLD," BERLIN.

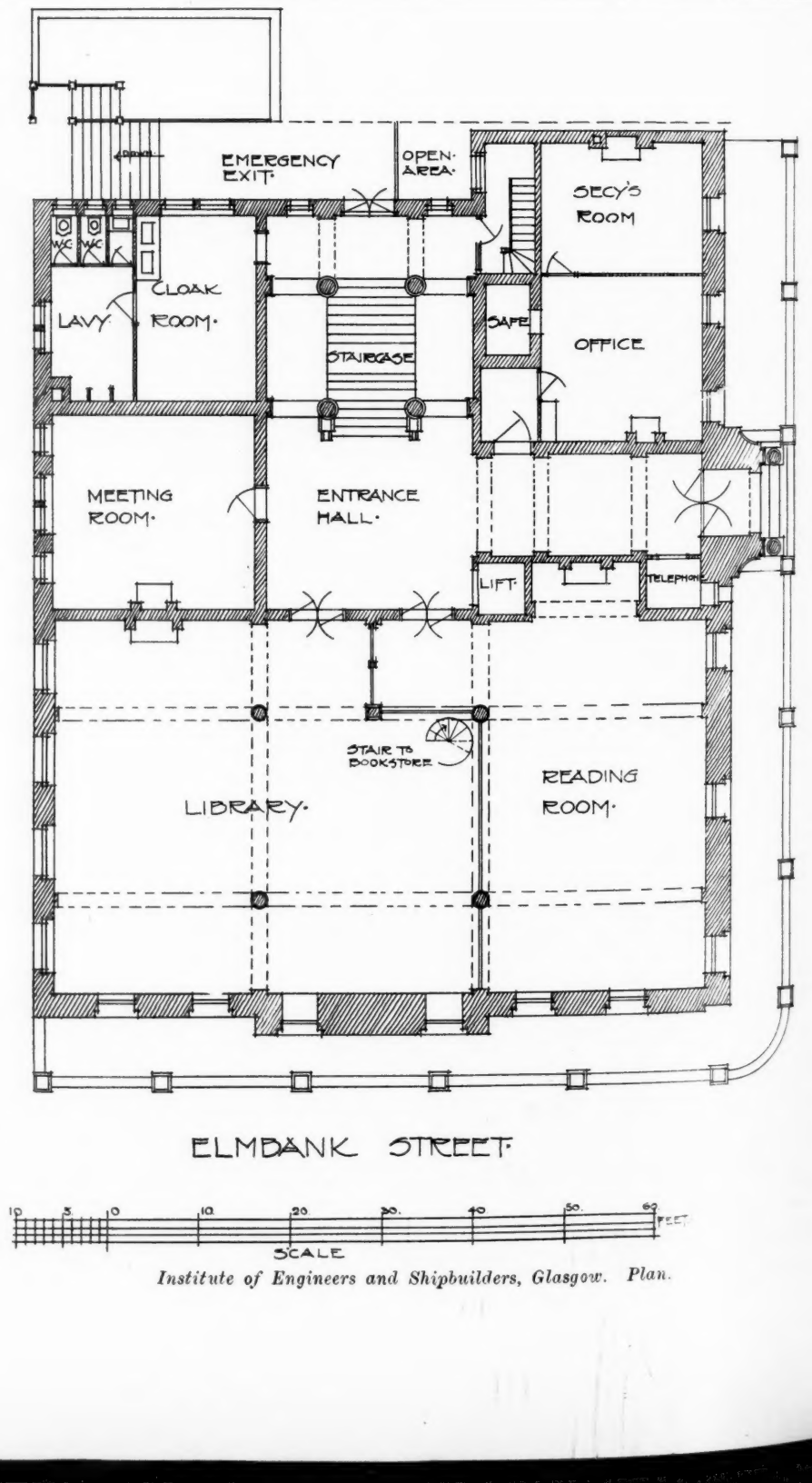
THESE illustrations are reproduced from among a number of illustrations of this remarkable piece of restaurant architecture which appeared recently in the magazine entitled *Deutsche Kunst und Dekoration*.

The architect of the building is Herr Bruno Schmitz. The illustrations on the upper part of the plate are part of the wall decoration of the "Onyx-Saal," from which title we presume that the wall-veneer is of onyx; the bas-relief panels above, representing "Air" and "Water" respectively, are by Herr Fleuerhahn.

The lower panels represent four out of six sculptured panels placed high up on the principal front of the building. We do not know exactly what they are symbolical of, but they represent a new method of architecturalising sculptured figures to the square shape of the head of the panel. Some people may think them very ugly; possibly they are; but they struck us as a new idea in the treatment of decorative sculpture in connexion with architecture. Professor Metzner is the sculptor.

INSTITUTE OF ENGINEERS AND SHIPBUILDERS, GLASGOW.

THIS building, the foundation of which was announced on Friday this week by the Duke of Argyll, is situated at the corner of Elmbank-street and Elmbank-crescent,



Institute of Engineers and Shipbuilders, Glasgow. Plan.

Glasgow, facing the High School. The annexed plan shows the arrangement of the ground plan. On the first floor are a small hall, meeting rooms, and smoking and coffee rooms; on the second floor a large lecture-hall and the council room.

The building, the design for which was selected in a competition in which Mr. Washington Browne was the assessor, is to be built of "Black Pasture" stone.

The architect is Mr. J. B. Wilson, of Glasgow. The cost of the building will be from 25,000*l.* to 30,000*l.*

The illustration is taken from the original elevation drawings submitted in the competition.

The Student's Column.

ELECTRIC LIGHTING AND HEATING.—XVII.

Wiring Buildings—Flexible Wiring System—Wood Casing—Tube System—Tree System—Distribution Board System—Three-wire System.

WIRING BUILDINGS. — Although considerable progress has been made during recent years towards standardising systems of wiring, there are still several systems in use. The simplest method of wiring is by means of wooden cleats (Fig. 34). Each cleat has two

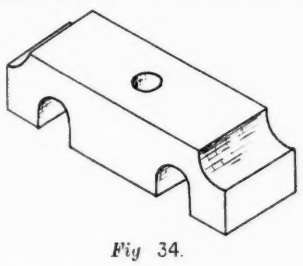


Fig 34.

grooves cut in it, the distance between them being about 1·5 in. The wires lie in these grooves, and the cleats are screwed to the ceiling joists. This system can only be used in dry situations, and where economy is the main consideration. The wires must be well insulated, and should always be left in plain sight.

Flexible Wiring System.—This method of wiring is very extensively used on the Continent. The insulators consist of grooved rings of coloured porcelain or glass, which are supported by small spring hooks furnished with pins or nails or screws. The flexible wires conveying the current from the mains to the lamp through the switch are simply threaded through the ring insulators. Sometimes intermediate clamp insulators are provided to prevent the wires from sagging. Flexible wiring can be installed in any building very easily, and with the minimum risk of injuring decorations. In Germany, where this system is very popular, the cost per point of the wiring averages about 15s.

Wood Casing.—Wood casing is generally made out of American white wood, which is cheap and easily worked. The insulated wires are placed in grooves made in long, narrow boards, which are placed end to end. Over the wires a long, thin covering-board, called the capping, is placed and screwed either to the central fillet of the casing or outside the grooves. It is important that the casing and capping receive two coats of varnish both inside and out. Sometimes ornamental casing is desired to match existing mouldings and decorations. In this case it is usually made of hard wood.

When the electric light is to be introduced into a house, surface work is generally the best and the cheapest. If, however, the lath and the plaster work have not been done, hidden work with casing or conduits is the best. It is necessary to have the grooves sufficiently large to enable the wires to be withdrawn if necessary. Whenever casings pass through floors they should be protected by a covering of sheet-iron extending 4 in. below the floor and 2 in. above it. In order to fix casings properly, workmen who have been trained as carpenters or joiners are necessary.

Tube Systems.—There are many methods employed for protecting the mains by means of metal tubes called conduits. These tubes, which are generally made of tempered steel, are put in the building during the early stages of its erection, and the cables can be drawn in after the plastering and the decorating have been completed. The tubes are joined by suitable couplings, and "inspection-boxes," "draw-in-boxes," "jointing-boxes," etc., are provided. These pipes form a perfect mechanical protection for the wires, as nails and screws cannot pierce them.

Tree System.—The "tree system" of wiring can be readily understood from Fig. 35. The company lays the service-mains to the consumer, usually taking them into a lower floor of the building where their ends are attached to the company's main fuse (CMF in Fig. 35). The current enters by one of the service-mains, passes through a thin piece of fusible wire at CMF, usually made of lead, and after passing through the lamps returns to the mains by another fusible wire. In the event of the current in any of the house circuits becoming excessive, the wires melt, and thus the house circuits are automatically disconnected from the supply mains. A fuse-block carrying two fuses as at CMF is called a double-pole fuse.

From the ends of the double-pole fuse CMF, the wiring which belongs to the consumer begins, a loop of wire being left for the company to fix up their supply meter M. The responsibility of the supply company ends at the meter, and all they do before turning on the supply is to test the insulation resistance from earth of the house wiring, and see that it conforms to their regulations.

In Fig. 35, MS is the main switch by means of which the house wiring can be disconnected from the mains. We then come to the consumer's double-pole fuse MF. The main cables are connected with MF, and supply the smaller service mains required for each floor of the building. On each floor there is usually a double-pole fuse F, and a double-pole switch S. The wires feeding the lamps are connected across the mains on the side of F remote from S. There is usually a further double-pole fuse and a switch for each lamp.

In this system of wiring there is a very large number of fuses, and some of these fuses sometimes break the circuit owing to the fuse-wires making bad contact with their terminals, or for other reasons, and thus cause unnecessary annoyance. When all the lights in the house are burning, there is sometimes an excessive drop of potential at the lamps which are farthest from MF (Fig. 35) owing to electromotive force being required to drive current through the mains and the fuses.

A customary rule is to choose the size of the wires so that the drop in volts at the farthest lamp may be at the most 2 per cent. of the declared pressure. In many cases, however, it would be more economical to use thicker wires than this rule would indicate, as the annual interest on the extra cost of these wires would be much less than the cost of the current required to make up the light owing to the lowered pressure. It has to be remembered that a drop of 1 per cent. in the voltage at the terminals of a carbon filament lamp means a 5 per cent. drop in the light given out by the lamp.

As an example, let us take the case of twenty 60 watt 16 candle-power lamps supplied by two service leads at a pressure of 200 volts. At this pressure each lamp takes 60/200, that is 0·3 of an ampere, and thus the twenty lamps will require 6 amperes. If the drop in the voltage is to be only 1 per cent., the resistance r of the service leads will be given by

$$6\,r = (1/100)\ 200 \text{ approximately,}$$

and thus r = one-third of an ohm. Hence, each of the leads must have a resistance of one-sixth of an ohm. If the length of each lead be 80 yds., then the resistance per mile will be (1,760/80) × (1/6), that is, 3·67 ohms, and as a 7/18 cable has a resistance of 3·3 ohms per mile at 60 deg. F., this sized cable would be suitable.

Distribution Board System.—The system which is now most commonly adopted is the distribution board system (Fig. 36). The large number of fuses and the excessive number of joints required in the tree system are serious drawbacks. The fuses also have often to be placed in places where it is difficult to get at them, and sometimes even in places which necessitate a search by the consumer to find out where they are. These difficulties are successfully overcome in the distribution board system (Fig. 36).

Starting from the mains in Fig. 36, we come first to the company's main fuse (CMF), then the meter M, and the double-pole switch (MS). After passing the main fuse (MF), we come to the main distribution board (MDB). The mains are connected with two bus-bars on this board. The terminals of the various subcircuits on

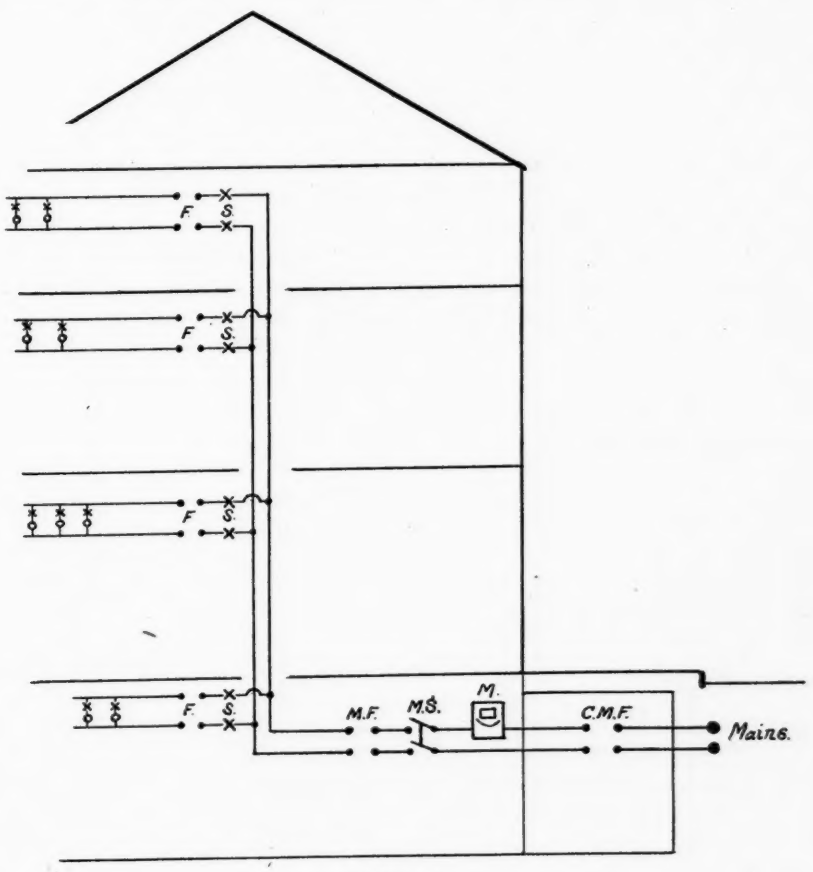


Fig. 35.

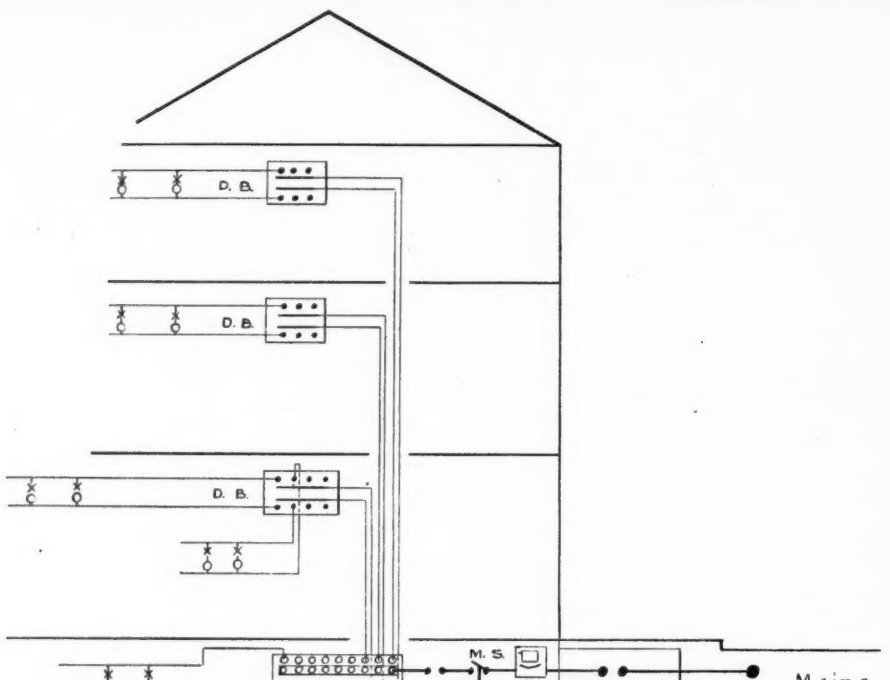


Fig. 36.

this board are connected with the bus-bars through fuses. There is usually a distribution board (DB) on each floor, and the various lamp circuits are connected with the terminals of these boards. Each lamp, as a rule, is controlled by a small switch, but it is not now customary to put fuses in circuit with each lamp. The fuses, all being placed on the distribution boards they are readily accessible, and if properly labelled no time need be lost in replacing a fuse if it happen to "blow." When spring-clip fuses are used they can be replaced by anyone.

Three-wire System.—In important installations the wiring is nearly always done on the three-wire system (Fig. 37). Starting from the positive main we pass the company's main fuse, then the meter, a triple main switch (MS), a main fuse (MF), and come to the positive bus-bar on the main distribution board (MDB). It will be noticed that in the middle or neutral main there is no meter and no fuse. The neutral bus-bar is in direct connexion through the main switch with the neutral main. The negative main is connected with the negative bus-bar on the main distribution board in exactly the same way as the positive main, fuses, a meter, and a switch being in circuit. The various subcircuits required for the distribution boards on the various floors are divided between the positive and neutral, and the negative and neutral bus-bars so as to divide the load approximately between them. It will be noticed that the difference of pressure between the positive and negative bus-bars is twice the pressure of supply, and hence the boards have to be carefully constructed so as to minimise any risk of shock. In practice the board is usually "split," the part containing the positive bus-bar being separate from that containing the negative bus-bar.

The reason for not putting a fuse in the middle main is to obviate the risk of some of the lamps burning out should this fuse blow the fuses on the two outer mains remaining intact. Let us suppose, for instance, that the pressure of supply is 110 volts, so that 220 volts is the difference of pressure between the positive and negative bus-bar, and let us suppose that the fuse on the middle main has melted. If ten lamps be burning between the positive and the neutral, and ten burning between the negative and the neutral, then we shall have 110 volts across each set of lamps, and so they will be unaffected by the blowing of the fuse. If, however, the loads be unbalanced, for instance, if we have two lamps burning between the positive and the neutral, and twenty between the negative and the neutral, the P.D. across the two lamps when the fuse blows will be 200 volts, and across the twenty lamps will be 20 volts. The two lamps, therefore, will burn out. To avoid the risk of this accident, fuses are never put in the middle wire.

We have now to explain how it is that the two meters measure the total energy consumed, and why it is unnecessary to put one in the middle main. Let V be the pressure between the positive outer and the middle main, and A the current in the positive outer. Similarly, let V^1 be the pressure between the middle main and the negative outer, and A^1 the current in the latter. The energy expended on the lamps between the positive and the middle main is VA watts, and between the negative and the middle main V^1A^1 watts. The total energy expended is therefore $VA + V^1A^1$ watts, and thus it can be measured without reference to the current in the middle wire $(A - A^1)$. If the meters are "watt hour" as distinct from "ampere hour" meters, one of the terminals of each has to be connected with the middle main.

In connexion with the triple-pole switch (MS) shown in Fig. 37, it should be mentioned that the middle link of the switch should complete the circuit of the middle main before, and break the circuit after, the other two links make and break their respective circuits. The reason for this is to prevent the possibility of excessive pressures being applied to lamps which may have been left in circuit when the main switch is operated owing to the outer two making connexion before the middle one.

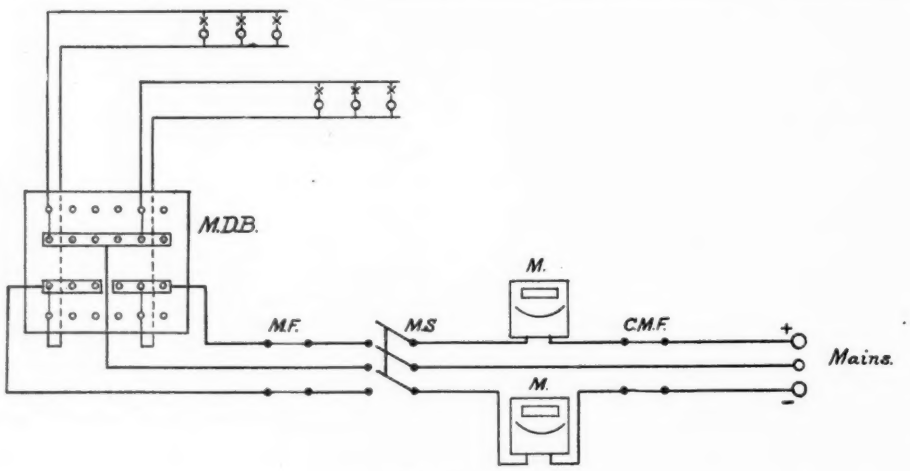


Fig. 37.

General Building News.

NEW CHURCH, ST. ALBAN'S, BRISTOL.—A new church is to be erected to meet the needs of the district of St. Alban's in the parish of Westbury-upon-Trym. The building will provide seating accommodation for 900 persons, exclusive of clergy and choir. The plan consists of a clerestoried nave, with aisles, chancel, small chapel, on the south side, vestries for clergy and choir, with organ chamber over the latter, and a small western gallery. Transepts separate the nave from the eastern portion. Externally it is proposed to use a local limestone for the walling, with dressings of Bath stone. The principal roofs will be covered with green Welsh slates. The interior walls will be faced with Bath stone and ashlar work, the aisles and transepts having an oak-panelled dado. The nave, which is 30 ft. wide, is spanned by a pointed arched ceiling in pitch-pine, close boarded and ribbed. The floors generally will be of wood block, with paved walking ways, the chancel floor being in marble. It is proposed to heat the building on a combined system of hot air and hot water, the foul air being extracted by means of trenches in the roofs. The internal length of the building when completed will be 136 ft., and the width across the transepts 68 ft. The height to the apex of the nave ceiling will be 42 ft. It is proposed that the nave, aisles, and transeps only be erected for the present. The architects entrusted to carry out the work, which is estimated to cost 8,100*l.*, exclusive of fittings, are Messrs. Rodway & Dening, Bristol.

NEW CHURCH, SWINDON.—The foundation-stone of a new church, to be dedicated to St. Augustine, was laid recently at Swindon. The plans have been prepared by Mr. W. A. Masters, architect, of Swindon, and the contract let to Messrs. H. & C. Spackman, builders, Swindon, at 3,100*l.* The plan is of the Basilican type, and the first portion to be erected at once will be the nave to accommodate 500 persons. It will be constructed of brick throughout.

NEW CHURCH, NORTHAMPTON.—The congregation of Holy Trinity Church, Northampton, have decided to erect a new church, and Mr. M. H. Holding, architect, has prepared the designs of the proposed work. The building will be in the Perpendicular style, and will provide accommodation for about 600 people.

GREEK CHURCH, CARDIFF.—A new church has been erected in Bute-street for the Greek community at Cardiff. The building has cost about 2,000*l.*, and will accommodate 300 people. Messrs. James & Morgan are the architects, the builders being Messrs. Knox & Wells, Roath.

HOLY TRINITY CHURCH, PORTSEA.—Under its new name of the "Naval Barracks Church," this church has been taken over by the Admiralty for use by the officers and men quartered in the Royal Naval Barracks at Portsmouth. The interior has just been renovated, the seating capacity has been doubled, and the lighting is improved by the lowering of the west gallery and the opening out of some partly-bricked-in windows; a newly-built wall encloses the structure within the dockyard. Holy Trinity Church was built in 1839 for 1,200 sittings, with a grant in aid of 3,300*l.* made by the Parliamentary Commissioners.

CONGREGATIONAL CHURCH, IPSWICH.—The new Congregational Church of St. John's, which has been built on a site in Cowper-street, Ipswich, was opened a short time ago. The building was erected by Mr. W. Pipe at a cost of 2,000*l.*, from the plans of Mr. Colley, architect. The seats are of varnished pitch-pine, and were supplied by Messrs. Friend & Co., Ipswich. The ventilating and warming apparatus has been installed

by Mr. E. Scott; the windows are filled with lead lights supplied by the Norwich Glass Company. The artificial lighting, done by Mr. Arthur J. Harvey, consists of incandescent gas lamps.

CHURCH RESTORATION, MARSTON TRUSSELL.—The restoration of the south aisle of the Marston Trussell Parish Church has now been completed at a cost of 350*l*., from plans by Mr. Matthew H. Holding, architect, of Northampton. The complete scheme is estimated to cost a further 2,000*l*., and includes the removal of earth round walls, repairs to exterior walls, new parapets and copings, restoration of roofs with new lead; interior repairs, new vestry and organ chamber and heating chamber, and also new heating apparatus.

CHURCH ENLARGEMENT, CARDIFF.—The memorial-stone was recently laid in connexion with the extension of the St. Dyfrig Church. The extension will complete the building, and will cost between 4,000*l*. and 5,000*l*. The contractors are Messrs. James Allan & Sons, and the designs are those of Mr. Arthur Grove, a pupil of the late Mr. John D. Seddon, who designed the first portion of the church. The building when completed will accommodate about 900 people, and will be constructed of Doulting stone outside and Bath stone inside. Two new gables will be added with north and south porches.

WESLEYAN METHODIST CHAPEL, NAPPERTON.—A new Wesleyan Methodist chapel and school are being built at Napperton. The elevation is Gothic, executed in pitch-faced wall stone, with dressings of Ancaster stone. The contractors are Messrs. Sprakes & Sons, of Doncaster, the architect being Sir Alfred Gelder.

COUNCIL SCHOOL, LEIGH.—The foundation-stone was recently laid of a new school which the Leigh Council are building in Windermere-road. Competitive designs were invited from fourteen architects, and the assessor nominated by the Royal Institute of British Architects (Mr. Mervyn Marcatney) made his award in favour of the plan of Mr. J. C. Prestwich, Leigh, who was appointed architect. The estimated cost of the building is 10,500*l*., and the school will accommodate 300 infants, 320 girls, and 320 boys—total of 940 children. The builders are Messrs. Robert Neill & Sons, of Manchester.

THEOLOGICAL COLLEGE, LINCOLN.—A dedicatory service was held on April 25 in the new chapel of the College in Bishop's Hostel, Lincoln. The chapel, a gift of Canon Du Buisson, warden of the hostel, has been erected after plans and designs by Mr. Temple Moore, and contains forty sittings.

GRAMMAR SCHOOL EXTENSIONS, ST. ALBANS.—The foundation-stone of the new Grammar School buildings at St. Albans was laid on the 22nd ult. The new buildings are situated near the Gateway on the site of the old Monastery, close to the west front of the Abbey. They will be in the Gothic style of architecture, with flint and stone façade and green roof with copper-covered bell turret. In the new structure will be included an assembly-hall, with seating accommodation for 300, designed with an open oak trussed roof, and a gallery with oak-panelled front supported on carved oak brackets. On the south and west sides there will be four classrooms, and on a level with the gallery of the hall there will be four more, together with a master's room. The new building will be approached by a stone-flagged cloister in front of the present chemical laboratory, through a lobby, on either side of which the lavatories and cloak-rooms will be arranged, fitted with wash-basins, shower-baths, and lockers. The school will be heated with hot-water radiators. Mr. Percival C. Blow, of St. Albans, is the architect, and Messrs. Ekins & Co., of Hertford, the builders, the contract price being 8,247*l*.

PRIMITIVE METHODIST SCHOOL, DEAN BANK, SPENNYMOOR.—The foundation-stones were recently laid of a new Primitive Methodist school which is in course of erection at Dean Bank. The work is being carried out from plans prepared by Messrs. Howdill & Howdill, architects, of Leeds.

WESLEYAN HALL, CROOKES, SHEFFIELD.—On the 25th ult. the foundation-stones were laid of a new Wesley Hall, which is to be erected at Crookes, at a cost of 9,000*l*., on a site adjoining the main road. The hall will be octagonal in plan. A shallow balcony will run around five sides of the octagon, which is 70 ft. in width, and this permits a large open space in the centre, producing a compact, light, and airy effect. The hall will accommodate 900. Mr. W. J. Hale, architect, has prepared the plans.

ASYLUM EXTENSION, MENSTON.—A new chronic block is about to be added to the buildings at Menston, which comprise the West Riding Asylum there. These buildings were designed by the County Architect, Mr. J. Vickers Edwards. The new block is to be detached from the main institution. The buildings will be two stories in height, each floor comprising a day room, 64 ft. by 36 ft., and a dormitory, 75 ft. by 36 ft., with single rooms, attendants' rooms, and the necessary bath-rooms, stores, and other requisite accommodation.

PROPOSED MUNICIPAL DWELLINGS, HIGHGATE.—A detailed scheme, prepared by Mr. E. J. Lovegrove, Engineer and Surveyor, for the erection of 120 additional workmen's dwellings at Highgate, has been adopted by the Hornsey Town Council. The scheme provides for the erection of twenty-two cottages at 12s. 3d. weekly; twenty-six at 10s. 6d.; twenty-four at 9s. 9d.; twenty-two at 9s.; and twenty-six at 7s. 6d. The estimated capital expenditure for the erection of the cottages, draining, fencing, and laying out and sewering the roads is 39,690*l*., to which must be added 5,700*l*., the cost of the land, making a total of 45,390*l*.

VARIETY HALL, SHIPLEY.—The building now known as the Coffee Palace is to be converted into a variety theatre. The new theatre is to accommodate 500 or 600 persons. Messrs. Empsall & Clarkson, of Bradford, are the architects.

FREE LIBRARY, NORMANTON.—The new Normanton Free Library is now nearing completion and will shortly be opened. The building, which is situated in Haw Park, off Castleford-road, is of brick, with stone dressings, and roofed with Westmorland slates, and has been erected by Messrs. R. Leake & Sons, Normanton, to the designs and under the supervision of Alderman A. Hartley, J.P., architect, Castleford. The total cost, including furnishing, has been about 2,500*l*. The furniture is of oak, and has been executed by the contractors and Messrs. T. Hirst & Sons, of Castleford.

PARISH HALL ENLARGEMENT, SUTTON SCOTNEY, HUNTS.—The Victoria Hall at Sutton Scotney has recently been enlarged. The additions were made from plans prepared by Mr. Clarence Hampton, of Putney, and the work was carried out by Mr. G. Goater, builder, of Sparsholt.

CARNEGIE LIBRARY, PLEASLEY HILL.—On the 20th ult. the new free library, built by the Mansfield Corporation at Pleasley Hill, was opened. The building was designed by Mr. J. E. Goodacre, architect, and the work was carried out by Messrs. Moore Brothers, builders, Mansfield.

SHIPPING OFFICES, GLASGOW.—New offices have just been erected for Messrs. Henderson Bros., of the Anchor Line, in St. Vincent-place, Glasgow. The premises are six stories in height, and have been built externally of white Carrara ware. The architect was Mr. James Millar, Glasgow.

DRILL HALL, CARLISLE.—The new Drill Hall of the Headquarters (Carlisle) Companies of the 1st Cumberland Royal Garrison Artillery Volunteers was opened by Lieutenant-General Sir Leslie Rundle on the 18th ult. The new premises are situated at the corner of Albert-street and Strand-road. The portion in Albert-street consists of a property which has been converted into headquarters, comprising office for the adjutant, reading and recreation rooms for sergeants and men, an officers' room, an armoury, clothes store, and quarters for the sergeant-major of the corps. What was formerly the lodge on the left hand of the main entrance has been converted into a band room, which is isolated from the rest of the building. The new buildings comprise a drill hall, 100 ft. by 50 ft., with a gun shed annexe 70 ft. by 21 ft. The floor of the drill hall has been constructed of wood for the purpose of drilling with heavy guns. The roof is supported by steel principals. Light is admitted through a continuous skylight of Heywood's patent glazing, in addition to the windows. The front to Strand-road is of pressed bricks from Mr. Baty, of Botcherby, and is treated with red stone dressings. Artificial light is provided by means of Welsbach incandescent burners. Sanitary accommodation is provided, and the yards are paved with concrete. The whole of the walls and roof above the dado have been coloured white. The work has been carried out by Messrs. John Laing & Son, who had the contract for the whole of the works, their sub-contractors being Mr. William Martin for the joiners' work, Mr. John Hewitson for slaters' work, Mr. Harrington for the concreters' work, Messrs. Sharp Brothers for the plumbing work, and Mr. W. N. Ballantine for painting and glazing. The work has been carried out under the superintendence of Messrs. Oliver & Dodgshun, architects.

NEW ABATTOIRS, CLITHEROE.—The Clitheroe Corporation have erected a set of new abattoirs to replace the old building standing in Henthorne-road. They have been constructed at a cost of about 2,000*l*. Powers were sought and obtained for the erection of seven houses, but it was considered that four would meet the immediate needs of the borough, and this is the block proceeded with. Each of the four houses is divided into three separate departments—lairage, slaughter-house, and cooling-place. The outside walls are built of the best Accrington bricks, and the inside, 4 ft. 6 in. high, with chocolate-coloured glazed bricks, and forward to 11 ft. high with white glazed bricks. The whole of the floors are concreted 9 in. deep, with proper channels formed in the concrete. The drains have all been fixed outside the buildings, each running separately to an inspection-chamber on the sewer; there is a separate water main with 1-in. supply, with hose, to each house; and a Stott's 15-in. extractor fixed on each house for ventilation purposes. The premises have been erected to plans prepared by the Borough Surveyor, Mr. A. R. Bleazard, under whose supervision the whole of the work has been carried out by the following contractors:—Masons, Messrs. Bleazard & Son; joiners, Messrs. A. Veevers & Son; plumbing and painting, Mr. R. Porter; slating and plastering, Mr. J. Ford; hoisting apparatus and railings, J. W. Bridge, Ltd., Accrington.

PRIMITIVE METHODIST CHAPEL AND CLASS-ROOMS, BROMLEY COMMON.—The foundation-stones were recently laid of the new Primitive Methodist chapel and classrooms which are being erected on a site facing the main road at Bromley Common. The chapel will be constructed of red bricks with stone dressings. Seating accommodation will be provided for 500 people in the body of the church and in the gallery. The interior fittings will be in pitch-pine. The vestibule will be paved with mosaic. Electric light will be used. In addition to the main structure there will be a church-parlour (with arrangements for dividing it into two classrooms when necessary), four classrooms, minister's vestry, kitchen, and all the usual offices. The present chapel will be extended and turned into a schoolroom. The architects are Messrs. Mould & Porritt, London, and the builders are Messrs. Podger & Sons, of Bromley.

NEW OFFICES, LIVERPOOL.—New offices have been erected for the clerical staffs of the Liverpool Corporation tramways and electric supply departments. The building has a frontage to Hatton-garden of 184 ft., and the total area of the site on which it stands is 1,982 sq. yds. It is constructed in six stories (including a deep basement), and the Hatton-garden front is of Hall Dale stone and red Ruabon brick. Exclusive of the cost of the land, furnishing, and fittings, the new offices represent an expenditure of 48,650*l*. Messrs. W. Thornton & Sons carried out the work from plans by Mr. Thomas Shelmerdine, the Corporation Architect and Surveyor.

Sanitary and Engineering News.

WATER SCHEME, HOLSWORTHY.—Mr. E. A. Sandford Fawcett, M.Inst.C.E., held an inquiry at Holsworthy, on the 17th ult., relative to the application of the Urban District Council to borrow from the Local Government Board 3,900*l*. for purposes of water supply (including the execution of works in the parishes of Hollacombe and Holsworthy Hamlets). The Clerk stated that two reservoirs would be constructed outside the town—in Hollacombe and Holsworthy Hamlets. The drainage scheme, which it was proposed to carry out, would have to be deferred until the present water scheme was completed. The drainage scheme, it was calculated, would cost 3,700*l*. Mr. J. Chadwick, C.E., said the supply would be for purely domestic purposes. The impounding reservoir would hold, when full, 909,053 gallons, and the service reservoir had a capacity of 75,000 gallons. The filters were capable of dealing with 30,000 gallons per day.

REFUSE DESTRUCTOR, BUXTON.—It is stated that Messrs. Heenan & Froude, of Manchester and Worcester, have secured the contract to erect a three-cell destructor for the Buxton Urban District Council, who propose to utilise the steam for sewage and electrical lighting works. The plant, being of the "Heenan" back-feed type, will deal with 18 tons of refuse per nine hours, and will comprise a regenerator engine, fan for forced draught, combustion chamber, and Babcock & Wilcox boiler.

SOUTHAMPTON WATER AND DOCKS.—The Harbour Board and the directors of the White Star Line have agreed to the deepening to a minimum depth of 32 ft., to be increased hereafter to 35 ft., of the channel between the docks and the point by Calshot Castle, and near Cadland Creek, by the dredging of upwards of 718,000 cubic yds. of gravel soil, at a cost of perhaps 100,000*l*., subject to a financial arrangement being made with the London and South-Western Railway, who own the docks. The dredging operation will enable the White Star liners to use the port and docks, where there is now a depth of water at the quays of from 28 ft. to about 33 ft. The White Star vessels will be berthed at the Tess quays until the new dock has been built to the north-west, near the Trafalgar Graving Dock.

THE TREATMENT OF LEEDS SEWAGE.—The pending action in the High Court by the West Riding Rivers Board against the Leeds Corporation has not restrained the desire of the Sewerage Committee of the latter body to be ready with a good and comprehensive scheme for the treatment of the sewage of the city whenever the

undertaking is carried out. Preparatory work is quietly proceeding. The committee are, among other things, experimenting a little more in the pressing of sludge, having hired a small plant for the purpose. They also resolved, a short time ago, to construct a short tramway, of 2 ft. gauge, to convey the pressed sludge from the works at Knostrop to the Aire and Calder Navigation Wharf, whence it will find its way to customers. At a meeting held on the 30th ult. the committee had before them the ordinary estimates of income and expenditure for the municipal year ending March 31, 1908. A sum of 75,815*l.* will be needed during the twelve months, or a net increase of 2,392*l.* over the actual expenditure of last year. The committee anticipate an income of 4,180*l.*, so that the amount to come out of the rates for sewerage purposes will be 71,635*l.*—*Yorkshire Post.*

Foreign.

PUBLIC WORKS IN NEW SOUTH WALES.

COMPARED with the expenditure of bodies like the London County Council and other county and municipal authorities in Great Britain, the annual outlay on public works by the Governments of Colonial states is not very startling, but as proved by the official reports which are received year by year the results achieved are invariably of most satisfactory character. The latest instance of the kind is furnished by the annual report by the New South Wales Department of Public Works, whose duties include the construction, maintenance, and improvement of State buildings, roads, bridges, railways, tramways, rivers, harbours, water supply works, and main drainage systems.

Public Buildings.—During the year ending June 30, 1906, nearly 300,000*l.* was spent on public buildin s. In the report of Mr. W. L. Vernon, F.R.I B.A., the Government Architect, are full particu ars concerning various important works executed and partly completed last year. Among these is the new Central Railway Station, Sydney, the total cost of which, together with the necessary lands and incidental works, is estimated at 718,600*l.* Other works of importance referred to in Mr. Vernon's report are the Mitchell Library building, the Pathological School at the Royal Prince Alfred Hospital, the Penitentiary at Long Bay, the University "Fisher" Library, the Reception House at the Hospital for the Insane, the University Buildings, the Royal Naval Victualling Stores at Darling Island, new administrative offices for the Police Department, and various new buildings at the Hawkesbury Agricultural College. The new railway terminus with its yards is one of the largest and most commodious establishments of its kind in the Southern Hemisphere; the Mitchell Library will accommodate the collection of more than 30,000 books, maps, and engravings presented to the State by Mr. D. S. Mitchell, and forms the first portion of the State Library buildings which will be erected at a cost of about 93,250*l.*, the estimated cost of the first portion being 25,000*l.*

Roads and Bridges.—In the department of the Commissioner for Roads and Bridges nearly half a million, exclusive of establishment charges, was spent in the year 1905-6, the main result being an addition of 493 miles to the previously existing road mileage, and thirty-six new bridges, ranging in span from 20 ft. upwards and representing a total length of 4,797 ft. Many of the new roads serve the purpose of opening up lands available for settlement, and already there are signs that a large proportion of the expenditure will be recouped by the increased value of the areas now made accessible. It is interesting to note that the necessity of dealing with the injurious effects of heavy vehicles on narrow tires has become very evident to the Government. The Under-Secretary for Public Works states that in some districts carriers and others are beginning to recognise the fact that less power is required to haul a load on broad wheels than on narrow ones, and that wheels with tires from 5 in. to 6 in. wide are becoming less infrequent than was the case some years ago. Nevertheless, regulations are none the less needed, and it may be pointed out that if New South Wales had followed the example of other states in the Commonwealth in this respect, a very large percentage of the money laid out in road maintenance during the past fifty years might have been saved.

The most important bridge built during the year was the concrete-steel low-level bridge over the Hawkesbury River at Richmond. This structure, which replaces a timber bridge built by private enterprise in 1860, consists of thirteen arched spans, each of 50 ft. clear, the total length being 722 ft. and the width of the roadway 21 ft. 6 in. The piers consist of concrete caissons sunk to bedrock and filled with concrete. Another work deserving mention is the bascule bridge erected at a cost of 14,211*l.* over the south arm of the Clarence River at Maclean, and consisting of a 62-ft. bascule span and fifteen timber girder spans, thirteen of 45 ft. and two of 30 ft. The bascule is of the rolling weight type, the span, towers, and roller track being of steel, and supported on a central pier formed of two 6-ft. diameter cylinders—cast-iron below high water and wrought-iron above high water—connected with wrought-iron diaphragm bracing. The side piers of the opening consist of two 4-ft. diameter Monier concrete-steel cylinders, while the piers for the timber spans are composed each of three 12-in. diameter cast-iron piles based on blocks of concrete.

Railways.—In railway construction the total expenditure was 309,074*l.*, four new lines with a total length of about 140 miles being in course of completion, and surveys having been made for other new lines with the aggregate length of about 210 miles. The length of State railways in operation throughout New South Wales is now 3,390 miles, representing a capital outlay of 43,626,062*l.* It is a matter for congratulation that after paying working expenses and interest the Commissioners were able to report the substantial surplus of 385,000*l.* for the year's working.

Harbours and Rivers.—Harbours and rivers are being improved on all parts of the coast, although none of the schemes intended to render the river entrances permanently navigable have yet been completed. Masonry breakwaters are under construction at the mouth of the Richmond River, at Port Kembla, and at Newcastle. The Port Kembla breakwater, in which no stone of less than 4 tons weight is used, was extended 178 ft. by the addition of 47,778 tons of stone, the work in its present condition representing 290,271 tons of stone deposited at a cost of about 4s. 3d. per ton. The Newcastle breakwaters were extended 440 ft. on the north, and 55 ft. on the south, by the deposition of 64,920 tons and 9,431 tons of stone, at the cost of 51·39d. and 47·18d. per ton respectively. To afford greater resistance to the action of waves on the slopes of the breakwaters, the minimum weight of blocks has been increased from 5 tons to 12 tons.

Water Supply Works.—Ample evidence is given of the beneficial effects of the work executed in previous years under the Artesian Wells Act and the Water and Drainage Act of 1902. Applications are being received on all hands from settlers for the sinking of wells, and it is stated that the total area so far provided with wells, sunk by the Chief Engineer for Rivers, Water Supply, and Drainage, comprises two million acres, the greater proportion of which in former days was periodically denuded of stock by frequently recurring droughts. In addition to their immense value to the inhabitants of the country, these water supplies come under the head of remunerative works.

Good progress appears to have been made with the great Cataract Dam in connexion with the Sydney Water Supply system. The dam having reached the height at which the storage of water was contemplated, some 450 million gallons were impounded in May last as the result of heavy rainfall. When complete this dam will hold up 21,000 million gallons of water.

Irrigation.—A movement of the greatest importance to the State is represented by a proposal which it may be hoped will be but the forerunner of many more of the same kind. We refer to the Barren Jack Dam scheme which, when realised, will render capable of sustaining a population of 35,000 persons, an area of about 285,000 acres, now unsuitable for settlement owing to the precarious nature of the natural water supplies. The scheme, which was approved by the Public Works Committee after the date of the present report, will be carried out by the Department at a cost of 1,574,008*l.* It involves the construction of a dam 200 ft. high to form a reservoir with the capacity of 208,034 million gallons and other works necessary for the distribution of water throughout the district. Some idea of the magnitude of this work and the enterprise of the New South Wales Government may be gathered from the statement that the capacity of the new reservoir will be almost equal to that of the Assuan Reservoir in Egypt.

There can be no doubt that by the construction of similar works in other parts of the State, the plentiful but erratic supplies of water at present available could be conserved in such a way as to convert large areas of land, now practically unproductive or able to support only small numbers of live stock into fertile and thickly populated country. Of course the Barren Jack scheme will first be completed and similar projects will have to be taken up one after another as funds permit.

We cannot conclude without congratulating the Government on the wisdom and enterprise they have displayed in deciding so promptly upon the inauguration of the first national undertaking of the kind.

GENERAL.

SOUTH AFRICA.—A new cathedral is being built by Messrs. A. B. Reid & Co. at the top of Adderley-street, Cape Town; 20,000*l.* has been collected in England to defray the cost of the sanctuary, the choir and the organ chamber. Table Mountain stone is the material being used wholly in the superstructure; a siding is to be constructed on the tramline in Wale-street to facilitate the moving of the stone from Table Mountain to the building site. The roof of the building no doubt will probably be executed in Jarrah wood, although the architects admit a possibility of using Colonial wood without incurring any extra expenditure, with a covering of Colonial tiles; if Colonial wood is used this will be the first building of any importance in South Africa that has been built entirely of South African materials.——A new reservoir is to be built at Queen's Town under the supervision of Mr. Vellatley. The approximate cost will be 80,000*l.*, and when completed it is estimated that it will hold over 150,000 gallons of water.——As the result of the public agitation and the recommendation of a ratepayers' meeting, the Town Council of Durban have decided to reconsider the question of completing the new Town Hall in stone instead of cement as previously decided. They have also agreed to expend the sum essential for the purpose of obtaining all the information necessary in arriving at a conclusion.——The National Federation of the Building Trade Employees have been holding their annual congress at Durban. The congress represents many associations in South Africa, and 400 builders. Among the many important questions that engaged their attention are protection of Colonial industries, compulsory arbitration, technical education, and insurance under Workmen's Compensation Acts.——At Johannesburg the new Thoma Brewery, the foundation of which was laid on January 19 last, is progressing rapidly. This building when completed promises to be the most up-to-date brewery in South Africa. It is being erected at a cost of 220,000*l.*, out of which it is said that 200,000*l.* is being spent locally. An idea of its proportions may be gauged by the fact that its floor area will measure approximately 14,000 sq. yds. A feature of the building will be its cellars, which will provide accommodation for 60,000 gallons of beer. Fireproof materials are being used throughout the premises. The architect is Mr. Choineer, who has had considerable experience in brewery construction.——Colonel W. Dalrymple, M.L.C., laid the foundation, on the 16th ult., of the new Presbyterian Church at Krugersdorp.——Mr. P. C. Stewart, one of the best-known architects on the East Rand, died at his residence in Boksburg on the 15th ult. The funeral—a Masonic one—took place the same afternoon, and was largely attended.

INDIA.—The Upper Chenab Canal is the most recent irrigation work in operation in the Punjab, and embodies all the improvements suggested by experience during the last fifty years. Mr. J. Davis, M.Inst.C.E., who visited the district last year on behalf of the New South Wales Government, describes the changes brought about by irrigation as "marvellous and soul-inspiring." Towns and villages have sprung up, manufactories have been started, the population has greatly increased, and the production of crops is enormous. Before the area now served by the canal was under irrigation it was simply a desert owing to the paucity of rainfall. The difference between irrigated and non-irrigated land can be realised in a very striking way in some places where plots which have not been irrigated are to be seen without a particle of vegetation, side by side with land growing wheat averaging 14·6 bushels to the acre and sometimes yielding as much as 30 bushels. The railway built specially to serve the irrigation colony is now one of the best paying lines in the Indian Empire, and land, formerly of no value, now realises from about 9*l.* per acre in country districts. The Chenab canal system, comprising channels with the total length of 2,765 miles, distributes water to nearly 3,200,000 acres of cultivable land, and returns about 25 per cent. on the capital outlay. It may be mentioned here that the total irrigated area in the Punjab presidency is more than 6,300,000 acres, or practically equal to the cultivable land in Egypt. We hear a great deal—and quite properly too—of what has been done and is going to be done in the last-mentioned country, but it ought not to be forgotten that far more extensive beneficent works have been and are still being executed in India. Why they do not receive equal attention in Great Britain it is not easy to understand.

ITALY.—An interesting exhibition has just been opened in the Palazzo dei Priori, at Perugia, consisting of exemplars of Umbrian art in the XIVth and XVth centuries, including church plate and decorative work, embroideries, tapestries, and pictures of the earlier schools, together with sculptures, miniatures, laces, brocades, and wood carvings. Special exhibits embrace a XIIIth-century monstrance wrought with enamelled designs by a goldsmith of Siena, and the altar frontal dedicated to St. Francis by Sixtus IV., who was Pope in 1471-1484.

Miscellaneous.

PROFESSIONAL AND BUSINESS ANNOUNCEMENT.—Mr. E. W. Mountford has taken into partnership his late chief assistant, Mr. F. Dare Clapham.

METHODS OF TESTING SLATE.—A comprehensive review of modern methods of testing slate is to be found in Bulletin No. 275 of the United States Geological Survey, prepared by Mr. T. Nelson Dale. In this document tests are given for determining the strength, toughness, elasticity, hardness, porosity, density, durability, sonorousness, and cleavability of slates, as well as the presence of lime, clay, magnetite, and other substances. We quite agree with Mr. Dale in the opinions that chemical analyses do not satisfactorily indicate the physical properties and weathering qualities of slates, and that microscopic examination is a most valuable and decisive test. By examining a thin section of slate under the microscope it is possible to obtain a reliable idea of the cleavage, the presence or absence of false cleavage, the probable permanence of colour, and the presence or absence of mineral constituents affecting other qualities of the specimen. This report is only one among many others showing the great practical interest taken by American Government Departments and officials in the advancement of professional and industrial knowledge.

CAMDEN CHURCH, CAMBERWELL.—A fire which broke out at midnight on April 15 has destroyed the roof of this church, and has done further damage to a considerable extent, including the destruction of the Canon Melville memorial window in the chancel, and of the new organ. Camden Church, in Peckham-road, originally built in 1797, was used by the Countess of Huntingdon's and other sects during thirty-five years, and was then licensed for services of the Established Church, and consecrated in 1844. At the instance of John Ruskin and the Rev. Daniel Moore the chapel was lengthened eastwards, and a chancel was added after plans and designs by Sir G. G. Scott, which are illustrated in the *Builder* volume for 1854; there were 1,700 sittings. Captain Hamilton's official report states that the building (used as church and classrooms) occupies an area of about 150 ft. by 60 ft. upon one floor, and ascribes the fire to a defective electrical current. The damage to the church, classrooms, and the adjoining lecture-hall is estimated at 5,000*l*.

DUBLIN POST-OFFICE.—Replying to Mr. Delany in the Parliamentary Papers, Mr. Sydney Buxton states that it is not a fact that the proposed structural alterations in the General Post-Office at Dublin have been temporarily abandoned. On the contrary, a large extension of the building has recently been sanctioned, but some minor points have still to be settled. He hoped that the Board of Public Works would shortly be in a position to proceed with the preliminary arrangements for carrying out the work.

ARTISTS' GENERAL BENEVOLENT INSTITUTION.—At the annual meeting, held on April 22, the ninety-second yearly report was adopted, showing that the gross receipts in 1906 amounted to 5,422*l*. 19s. 11d., including 2,895*l*. 6s. 6d. subscribed at the last dinner. During the year a total sum of 4,326*l*. was distributed in amounts of from 10*l*. to 100*l*. to 203 applicants. Sir Edward Poynter, P.R.A., and Sir Aston Webb, R.A., were re-elected as President and Treasurer of the Institution. The festival dinner will take place on May 9, under the presidency of Mr. Rudyard Kipling, at the Hotel Metropole.

NATIONAL EXHIBITION, EDINBURGH.—The Corporation of Edinburgh have assigned a site in Saughton Park for the exhibition buildings, 1908, which will comprise a fine art palace, halls for industries, machinery, and concerts, together with winter gardens and a music-promenade, as well as a model of a garden-city. There will be exhibits from Continental countries and Governments, and, it is hoped, from all parts of the British dominions; whilst the fine art section will be mainly devoted to works by Scottish painters and sculptors.

WHITEFIELD TABERNACLE, FINSBURY.—At the Mart, on April 24, this property was, with the adjoining schools, withdrawn from sale at a formal bid of 11,000*l*. It covers an area of nearly 7,800 ft. super., having a total frontage of 170 ft. to Tabernacle and Leonard streets. The Independent Chapel was built of stone, after the Gothic style, more than 150 years ago in the former Tabernacle-walk, for 1,050 sittings. It replaced a temporary structure erected in Moorfields by Whitefield in 1741. The committee are about to transfer the place of worship to Alexandra Park, Muswell Hill.

ROYAL INDIAN ENGINEERING COLLEGE.—As the Engineering College has been closed and the buildings are being dismantled the India Office have presented to the vicar and churchwardens of Egham parish six stained glass windows and six memorial brasses from the college chapel. The college was built after plans and designs by Sir M. D. Wyatt; illustrated in the *Builder* of August 5, 1871.

SANITARY POTTERY TRADE DISPUTE.—The sanitary pressers in the Potteries, who are on strike for a readjustment of making prices, mainly of one specific article, have accepted the concessionary offer of the employers to waive the dispute as to notices and their requirement that the men should return to work prior to negotiations being entered upon, and to meet the men in conference. This conference was held on the 30th ult. at Stoke-on-Trent. The result of the conference, so far as concerned prices, was in favour of the men, who were awarded 3s. 7d.

WORKING-CLASS DWELLINGS, CHELSEA.—The Public Health Committee of Chelsea Borough Council are to engage an architect at a fee of fifty guineas to submit a rough sketch and an estimate of the cost of erecting working-class dwellings upon freehold land on the south side of Grove Cottages, Manor-place, given to the local authority by Earl Cadogan.

IMPROVEMENTS AT WHITEHALL.—It is proposed to rebuild His Majesty's Office of Woods and Forests and other Government property at Nos. 1 and 2, Whitehall-place, and No. 1, Whitehall. In connexion therewith the Commissioners of the Office of Woods and Forests have suggested to the Westminster City Council that the present would be a convenient time to open out Scotland-yard, widen the western end of Whitehall-place, and a part of the footway of Whitehall, and stop up a roadway in Scotland-yard which now runs round on the north side of the old police buildings standing by itself in the Yard. The Commissioners consider that if this scheme is adopted a considerable public improvement will be commenced, which will be completed on the rebuilding in a few years' time of other neighbouring Crown property. The immediate effect of the alterations will be that a considerable area of very valuable building land will be given up for public improvement to convert the western part of Scotland-yard through the Crown property into a 40-ft. road, which will be entirely open. Whitehall-place will be made of a uniform width about equal to the present widest portion, and the foot paving to Whitehall will be somewhat widened. The chairman of the Improvements Committee of the City Council interviewed His Majesty's Commissioner of Woods and Forests and other officials as regards the matter, and he reports that they are willing to re-examine their plans with a view to the possible widening of the passage to Whitehall-place and a slight improvement of the line of frontage in Whitehall. The London County Council inform the City Council that they are endeavouring to obtain an addition to the site occupied by their fire-station and to widen the street opposite. The Improvements Committee of Westminster consider that by the removal of the archway leading from Whitehall into Great Scotland-yard, and the formation of a street opening from Whitehall 40 ft. wide, a convenient and practically new thoroughfare would be formed to Northumberland-avenue, relieving to some extent the crowded corner of Charing Cross. They therefore support the scheme.

KENSINGTON GARDENS.—Sir George Fardell asks the Chief Commissioner of Works in the Parliamentary Papers when the plant-houses and forcing frames which stand in Kensington Gardens and spoil the architectural effect of the Palace and of Wren's Orangery will be removed, and the area now occupied by them laid out as an ornamental garden?—Mr. Harcourt replies that he hopes to be able to carry out the work at the end of the year and to undertake the ornamental garden next year if funds are provided.

Capital and Labour.

CONCILIATION BOARD, NORWICH.—The conciliation board which has recently been established at Norwich, held its first meeting on April 10. Mr. John Hurn was unanimously elected chairman, while Mr. Geo. Brown was appointed vice-chairman. Mr. J. H. Hatch was next elected employers' secretary, and Mr. G. E. Beckwith operatives' secretary. Many efforts, says the *Yarmouth Weekly*, have been recently made to agree upon a code of working rules, and although some points of agreement in that direction had been arrived at, there were two points upon which agreement could not be arrived at. These points were the four-mile radius and the employment of non-society men. With regard to the former, the original suggestions were four miles on the part of the men, and two miles on the part of the employers. The latter now suggested as a compromise that the distance should be three miles. After a discussion the chairman suggested that it might be possible to arrive at a settlement if the employers' representatives accepted the four-mile radius, and the operatives' representatives withdrew their opposition in the case of the other disputed point, viz., the rule as to non-society men. This compromise was accepted. Mr. Smith moved that the employers' rule relating to non-society men be inserted in the Carpenters' and Joiners' Society rules. This was also carried. Employers' rule No. 8 respecting the period of agreement was next considered, and it was agreed that the time of agreement be extended by one year, viz., four years from March 1, 1907, and that the three months' notice to terminate agreement on either side must expire on March 1. It was further agreed that the annual meeting of the Board should be held on May 1 for the re-election of officers and signing of rules and minutes.

Legal.

ACTION BY ARCHITECT FOR SPECIFIC PERFORMANCE OF AGREEMENT.

THE case of Jones *v.* Thomas came before Mr. Justice Warrington in the Chancery Division last week, an action by the plaintiff for specific performance of an alleged agreement to grant him a lease of certain property which consisted of some 20 acres which formed part of a farm in Glamorganshire.

Mr. H. Terrell, K.C., and Mr. Percy Wheeler appeared for the plaintiff; and Mr. Cave, K.C., and Mr. Tomlin for the defendants.

Mr. Terrell, in opening the case, said the land in question belonged to the defendants, Anna Thomas, Mary Llewellyn, and Alfred Charles Thomas, who was a member of the Bar, practising at Cardiff, and who acted as agent for the owners. At the time the agreement was entered into the estate was purely agricultural. That was in March, 1905. In that year it was anticipated that certain colliery operations would be commenced in the neighbourhood, and that there would be a demand for cottages in the locality, and it was in consequence of this that the plaintiff approached Mr. Thomas as to taking the land and developing it as a building estate. The plaintiff, Mr. N. Jones, was an architect, and at his interview with Mr. Thomas on March 16 the first question raised was as to the rent to be paid, which was agreed at three farthings per square yard. Mr. Thomas then took a printed form of agreement which he filled in, and made two copies of it, but these copies did not quite agree. When that was done the question arose as to the stone to be used for the purpose of building the cottages. In that neighbourhood all cottages were built of stone and not of brick, and on the property that was being leased there was a stone quarry, and the plaintiff required the right to take the stone for the purpose of building. Mr. Thomas accordingly wrote at the bottom of the printed form of contract that he had filled in that the lessee was to have the right to take stone on the property on the payment of a royalty of 3d. per ton. He (counsel) contended that those words were put in for the purpose of giving expression to the agreement that had been come to that the plaintiff should take the stone. The plaintiff was admitted into possession, and in February, 1906, the first half-yearly payment of rent was demanded. The draft lease had in the meantime been sent, and as it contained no provision for the plaintiff taking the stone, it was returned amended, but on the defendants threatening to take proceedings to recover the rent due for the half year it was paid. In these circumstances he submitted defendants could not now say there was no agreement to grant a lease, and a lease which contained permission to the plaintiff to take such stone as was required for the buildings to be put on the land.

Evidence having been given on behalf of the plaintiff's case,

Mr. Alfred Charles Thomas was called for the defence, and denied that it was understood that plaintiff was to have the right to take stone from the land except such stone as was excavated for the purpose of making the foundations of the proposed buildings.

In the result, his lordship, in giving judgment, said the only dispute was whether the plaintiff had made out his case that a term of the agreement was that stone should be got from the demised land as might be required for building on payment of a royalty of 3d. per ton. In his opinion there was no such agreement, although he belived that the plaintiff thought the story he had told was correct. He accepted the evidence of Mr. Thomas that if the plaintiff should take the stone from the land it was to be the subject of a separate agreement. In his opinion the plaintiff had failed to prove his case, and the action must be dismissed with costs.

CONTRACTORS' CLAIM AGAINST DISTRICT COUNCIL.

THE case of Wm. Jones & Co. *v.* Urban District Council of Maesteg came before the Court of Appeal, consisting of Lords Justices Moulton and Buckley, on the 30th ult., on the defendants' appeal from the order of Mr. Justice

Sutton in chambers affirming the order of the Master refusing to stay the action and send the matter in dispute before an arbitrator.

Mr. C. C. Hutchinson and Mr. Fletcher Moulton appeared for the appellants; and Mr. Acland, K.C., and Mr. George Ricketts for the respondents on the appeal.

Mr. Fletcher Moulton said the plaintiffs were a firm of contractors of Neath, and the action arose out of a contract for the construction of a reservoir for the defendants. The contract was made under the provisions of the Public Health Act, 1875, and the District Council were bound by the provisions of that Act as to the obtaining of loans. The date of the contract, which was under seal, was August 31, 1903. By its provisions the work was to be done at a scheduled rate of payment for the sum named in the contract, or slightly over 29,000*l*. The date for the completion of the work under the contract was August 31, 1905. The work went on for some time, and then very considerable difficulty was found owing to the nature of the ground, which was apparently quite unsuitable for a reservoir. The contractors were paid 23,000*l*. for the work they had executed, and then it became clear that it was impossible to finish the work for anything like the sum mentioned in the contract and for anything like the sum which the defendants had power to borrow. Defendants had therefore to make an application to the Local Government Board for a further loan, and according to the rules of the Local Government Board a report upon the matter by an independent engineer was necessary. This report was obtained and was unfavourable, and finally the defendants under a provision in the contract gave the plaintiffs notice to omit all further work, or in other words to stop the work altogether.

Lord Justice Moulton: That means abandoned the reservoir?

Mr. Moulton said that was so. Thereupon, he said, the plaintiffs issued their writ claiming a large sum for loss of profit and so on, and in due course defendants applied to Master Chitty for a stay of the proceedings under the arbitration clause in the contract, and the Master ordered without prejudice to the defendants' rights under the contract that points of claim and points of defence should be delivered so as to define the questions which would have to be tried. Finally the Master refused to stay the action, and Mr. Justice Sutton affirmed his order.

Lord Justice Buckley: The sole question appears to be whether the arbitration clause is large enough to cover this particular point.

Mr. Moulton said that before the Master the defendants made an offer—which was now adhered to—to go before any expert engineer who was agreed upon.

Lord Justice Buckley: Why did the learned judge refuse to act on the arbitration clause?

Mr. Moulton: I am told he gave no reasons.

Mr. Acland: The point was made that the disputes which had arisen were not in the arbitration clause at all, and, secondly, that, if they were, it was a matter of discretion for the Court, and the Master having exercised his discretion, it ought not to be interfered with. Another ground was that the questions raised were not questions of engineering, but questions of law.

Mr. Moulton said the defendants made no charge against the plaintiffs of improperly doing the work, but what had happened was that owing to the state of the ground the defendants came to the conclusion that it was practically impossible for anybody to construct the reservoir, and it was impossible for the Council with their powers to get a loan to pay for it. The engineer said that it would cost 70,000*l*. to construct it.

Lord Justice Moulton (to Mr. Acland): Why do you object to go to arbitration?

Mr. Acland: I desire to go to one of the Official Referees. I recognise that the matter must go to a reference in some form or another, but we do not desire to go to an engineer. From first to last the contractors have not had one single letter complaining of their work. The District Council had been extremely badly advised in attempting to make a reservoir in such a place.

After further discussion the parties agreed that the matter should be referred to an Official Referee, and an order was made accordingly, the costs of the appeal being made costs in the cause.

CONTRACTORS SUED FOR DAMAGES.

At the Colchester County Court on the 24th ult., before his Honour Judge Tindal Atkinson, Henry Pointer, in the employ of Messrs. Dobson & Son, builders and contractors, sued Messrs. W. & E. Osborne, contractors and coal merchants, for damages for injuries sustained in an accident caused by the defendants' horse.

Mr. A. G. Hawkins appeared for the plaintiff, and Mr. C. E. Jones, barrister, for the defendants.

Mr. Hawkins stated that in September Messrs. Dobson employed the defendants to cart some timber from St. Botolph's Station to their premises. The defendants sent a horse and timber carriage to the station, with their driver, Wilson, and Messrs. Dobson sent the plaintiff to assist in the loading. It appeared that the vehicle had been loaded and was being driven to Messrs. Dobson's premises, when the defendants' driver remembered that he had left some things against the truck. He thereupon left his horse to go and fetch the things, instructing the plaintiff to look after the horse whilst he was gone. In Wilson's absence the horse, which had been "fidgety" during the loading, started forward and knocked the plaintiff over, and one of the wheels of the vehicle passed over his legs. In consequence plaintiff had to be taken to the hospital, where he remained for some time.

Evidence having been given as to the plaintiff's injuries,

Albert Edward Wilson, driver, in the employ of the defendants at the time of the accident, stated that he had never been cautioned about leaving the horse. He admitted asking plaintiff "to keep his eye on the horse if he liked." He was quite sure he said "If you like."

Mr. Jones submitted that there was no case for him to answer, and that there was no negligence. As far as the evidence went, the horse was a perfectly quiet one, and, in addition to that, Pointer was a pure volunteer in looking after it. It was no part of his duty to look after it, and it was no part of Wilson's duty to order him to do so.

His Honour: Supposing you see a horse in the roadway, and it starts off. If you stop it——

Mr. Jones: You do so at your own risk.

His Honour asked Mr. Hawkins what negligence he alleged.

Mr. Hawkins said the defendants' driver never ought to have left the horse unattended.

His Honour said he could not see that there was any evidence of negligence. He pointed out that defendants' driver simply forgot certain things and went back to the station to get them. Was it negligence to forget?

Mr. Hawkins: Certainly.

His Honour gave judgment for defendants.—*East Anglian Daily Times.*

ACTION BY BUILDERS.

Mr. Justice Walton, in the King's Bench Division on the 29th ult., delivered a considered judgment in the case of Chessum & Son *v.* Macdonald & Hunt.

In this case the plaintiffs, a firm of builders, brought the action to recover from the defendants who carry on business in Birmingham, 500*l*. odd alleged to be due on the adjustment of accounts between the parties at the conclusion of a sub-contract let by the plaintiffs to the defendants for the plumbing and painting work at certain artisans' dwellings at Dalston. The plaintiffs alleged that the actual settlement was made on an erroneous basis arrived at in consequence of one of the plaintiffs' clerks having mistakenly debited them with certain sums. Defendants originally denied all liability, but in February last, upon the decision of some of the points at issue by the learned judge, admitted liability for 389*l*.

His Lordship, after allowing a contra-account made by the defendants, now gave judgment for the plaintiffs for 409*l*. and costs.

BALHAM BUILDING DISPUTE.

The case of Chivers *v.* Ayris came before Mr. Justice Warrington in the Chancery Division on the 25th ult.

The plaintiff, Mr. Richard H. Chivers, proprietor of Nos. 4, 6, 8, and 10, Dornton-road, Balham, sought to recover damages from his next door neighbour, the owner of No. 12, for annoyance alleged to have been caused him by the defendant throwing out the back part of his premises to the extent of 32 ft.

Mr. Chivers declared that the projection of defendant's house shut out the sun and air from his premises and affected his enjoyment of six rooms. It had also prevented his flowers from blooming and a grass plot had died away. He relied on a covenant in his conveyance which provided that no purchaser should cause or suffer any annoyance to any other tenant and no tenant should do anything to depreciate the land as a residential estate.

Without calling on the defendant, his lordship held that the extension of the defendant's premises was not an annoyance within the meaning of the covenant and dismissed the action with costs.

BOGNOR BUILDING DISPUTE.

In a Divisional Court of King's Bench, composed of the Lord Chief Justice and Justices Darling and Phillimore, last week, the case of Henty & Sons *v.* the Bognor Urban District Council was heard on an appeal from a conviction by the justices in a prosecution by the Council under the provisions of the Public Health (Building in Streets) Act, 1888.

The case came before the Court in October last, when it was ordered to be remitted to be restated.

The questions for the Court to determine were whether a space known as Sea-road, Bognor, was a street within the meaning of the Act, and whether Messrs. Henty & Sons had built an addition to Beach House Hotel beyond the front main walk or building line of the house standing on the side of it, and had so built without the requisite sanction of the urban authorities. The justices now decided that the house next to the Beach House Hotel, which house belonged to Mr. Arthur Davies, was in the same street as the hotel, and that Sea-road was a "street" because it was a continuous line of buildings sufficiently contiguous to one another. In coming to their conclusions they said that they decided on questions of fact, having in their minds the matters relied on in the proceedings against Mr. Davies. They held that the approval of the District Council was, therefore, required. Against this decision Messrs. Henty & Sons appealed.

Mr. Hoaler, K.C., was heard for the appellants and without calling upon Mr. Humphrys for the respondents, the Lord Chief Justice said now that they had had the case restated, he thought it impossible to say that the justices had not evidence before them to find as they did on the questions of fact. They had found, as in the Davies case, that the front main wall was the building line, and that the erection in question was such as to justify the magistrates in holding, as they did, on the facts.

The other judges agreed, and the appeal was dismissed with costs.

ACTION BY BUILDER AGAINST BUILDING OWNER.

The hearing of the case of Irwin *v.* Neal concluded before Mr. Justice Joyce in the Chancery Division on the 20th ult., an action by the plaintiff, a builder, to recover from the defendant the balance of the contract price for work done. The defendant counterclaimed against the plaintiff for about 1,445*l*. in respect of alleged defective work and for failure to complete the buildings in accordance with the contract.

Mr. Danckwerts, K.C., and Mr. Edw. Morten appeared for the plaintiff; and Mr. Clavell Satter, K.C., and Mr. A. A. Hudson for the defendant.

Mr. Danckwerts, in opening the case, said the plaintiff was a builder, and the defendant a gentleman who owned some land at Hounslow upon which he wished to erect six shops. The defendant asked for tenders, and on October 28, 1903, the plaintiff's tender was accepted, and the acceptance of the tender constituted the contract. The tender was for a block of six shops at a place called Neal's-corner, High-street, Hounslow, and the price to be paid for the work was 7,455*l*. Plaintiff started the building, and the defendant's architect gave certificates from time to time as the work was completed. Under the conditions there was a clause requiring the builder to make good any defects discovered within six months of completion due to bad work or improper materials. At the finish there was a balance due to the plaintiff of 555*l*. The architect gave a certificate for 250*l*. on account, and held over the balance for a time. The plaintiff's case was that the defendant's architect was satisfied the work was properly done and that the six months elapsed and no complaint was made. In fact no question was raised till long after the six months had elapsed. It appeared to him (counsel) that the defendant wished to get out of his contract by finding faults in the plaintiff's work, but he contended that the plaintiff was entitled to recover the amount claimed.

Evidence having been given in support of the plaintiff's case,

Mr. Clavell Satter, on behalf of the defendant, said the only question his lordship had to determine was what were the legal rights of the parties, and whether to any extent, and if so to what extent, the defendant's mouth was closed so as to prevent him from going into the real facts of the case. It could be hardly denied that if his lordship decided the case as the plaintiff asked some injustice would be done. The plaintiff said he was entitled to a balance of the contract price of the work, amounting to roughly 550*l*., and the defendant said, "No; you are in fact entitled to nothing, because you have not got the certificate which entitles you to recover." The question his lordship had to decide on the claim was, had the architect in this case given the plaintiff a certificate for the final balance due? His lordship knew the difference between a final certificate and a progress certificate. His learned friend had to establish that there had been a final certificate given. As regarded the claim the material point was whether there had been a final certificate given for the balance alleged to be due? He submitted that the evidence and the correspondence plainly showed that the defendant's architect never in fact gave any final certificate, and that he never intended to do so. The plaintiff relied upon having the progress certificate for 250*l*., but he submitted the plaintiff could not avail himself of that certificate whether his lordship took the figures as defendant gave them or whether he took them as the plaintiff gave them. If

defendant's figures were right there was due to the plaintiff upon the contract price an unpaid balance of 105*l.* only. An architect had no authority to vary a contract or to require his client to pay money which was not payable under the contract.

In the result, his lordship, in giving judgment, said that on the whole he was of opinion, and decided that neither the final certificate for the amount to be paid nor any sufficient certificate of the satisfactory condition of the work had been yet obtained from the architect. In other words, he thought the action as framed could not be maintained. He understood that the defendant did not object to a reference to an official referee for him to determine what, if anything, remained to be paid under the contract for extras and so on. He had heard nothing from plaintiff's counsel about the counterclaim, and he assumed that evidence would have to be given as to that and he should also refer that to the Official Referee. If the parties could agree upon a Special Referee the claim and counterclaim would go to him and not to an Official Referee.

CASE UNDER THE WORKMEN'S COMPENSATION ACT.

AT the West Bromwich County Court, on the 25th ult., before his Honour Judge Smith, an application was made by Mr. Chester Jones, of London, on behalf of Joseph Lewis, bricklayer, of Cheshire-road, Smethwick, against Messrs. Walton Brothers, builders, of Smethwick, under the Workmen's Compensation Act.

Mr. Jones explained that the applicant claimed compensation for the loss of an eye. The applicant had been a bricklayer for thirty-eight years, and during this time he had been in the employ of the defendant firm. Sometimes the applicant undertook to find the labour and pay the men for building cottages; at other times he was working as a foreman, and sometimes as a bricklayer. In November, 1905, the applicant met with a slight accident to the eye, but that seemed to get better. On January 26, 1906, he was working on some cottages in the Rawlings-road, Smethwick, and a man who was working close by him picking up a gravel path caused a stone to fly up. This struck the applicant in the eye, with the result that in February, 1906, he had to have his eye removed. Prior to the accident applicant was earning 2*l.* 14s. a week. After the removal of his eye he was unable to do any work until about April 24, when the respondents approached him with the view of his being employed by them. The applicant again went into their employment, and remained with Messrs. Walton from April to October. At the end of October respondents discharged the applicant, and since then, with the exception of some five weeks, he had been entirely out of employment. The strain on the applicant's remaining eye was so great that he could not do a continuous day's work, and he submitted that the applicant was entitled to compensation from the time of the accident.

Mr. Shakespeare, who represented the respondents, said his chief lines of defence were that the applicant was not a workman within the meaning of the Act, and even if he had been injured by an accident, and he was a workman, there was no loss to him, and that there had been an agreement come to with regard to the accident.

The applicant admitted that he had taken sub-contracts for the respondents, but their agreement was broken some time before the accident, and when he met with his injury he was a day worker.

The Judge found that the man was a workman and not a contractor. He, however, reserved his judgment as to an agreement. He stated that in case he found in favour of the applicant on the agreement question, he should award compensation at the rate of 16s. a week.—*Birmingham Post.*

HAMPSHIRE ROAD DISPUTE.

THE case of the Northam Bridge and Roads Company *v.* the South Stoneham Rural District Council came before the Court of Appeal, composed of the Master of the Rolls, the President of the Probate, etc., Division, and Lord Justice Kennedy, on the 26th ult., on the defendants' appeal from a decision of Mr. Justice Joyce in the Chancery Division.

The plaintiffs brought the action to recover 113*l.* 15s. they alleged to be due from the defendants under an award to the owner of the subsoil of a road under which defendants had constructed a sewer. By an Act of George III. plaintiffs were authorised to construct a bridge over the river Itchin at Northam, to make certain roads, to erect toll-houses, and to take tolls from the persons using the bridge and roads. By sect. 10 of the Act the company were empowered to contract for the purchase of lands for the purpose of making the roads. It appeared that the plaintiffs were unable to produce a conveyance relating to a portion of a road under which the defendants had laid a sewer. After it was laid arbitrators were appointed to assess the compensation to be paid by the defendants to the plaintiffs for its construction. The arbitrators being unable to agree the Local Government Board appointed an arbitrator, who awarded that the defendants should pay plaintiffs 34*l.* for surface damage, but submitted for the opinion of the Court whether the subsoil of the road in question was or was not vested in the plaintiffs, and if it was so vested he awarded that defendants should pay the plaintiffs the further sum of 113*l.* 15s. Defendants paid the 34*l.*, but refused to pay the 113*l.* 15s. on the ground that the plaintiffs were not the owners in fee simple of the road and the subsoil thereof. No conveyance of that portion of the road to the plaintiffs could be found. The defendants alleged that under the Act it was not necessary for the plaintiffs to purchase the soil of the road, and that it ought to be presumed in the absence of any deed of conveyance that no such deed had ever been made, and that the subsoil was never acquired by the plaintiffs. Mr. Justice Joyce held that the plaintiffs were entitled to the 113*l.* 15s. with interest at 4 per cent., on the ground that the whole scheme of the Act was that the plaintiffs should purchase the fee simple of the lands set out for the roads and that, having been in possession ever since the road was made, the presumption was that the plaintiffs had acquired the fee simple in the subsoil and were the owners thereof. Hence the present appeal of the defendants.

Mr. Hughes, K.C., and Mr. Emanuel appeared for the appellants; and Mr. Bousfield, K.C., and Mr. M. G. S. Sanders for the respondents.

In the result their lordships, without calling upon counsel for the respondents, affirmed the decision of Mr. Justice Joyce and dismissed the appeal with costs.

Patents of the Week.

APPLICATIONS PUBLISHED.*

7346 of 1906.—O. M. ROW & ROYLES, LTD.: *Apparatus for use in connexion with the Straining, Aerating, Filtering, and Reheating of Bath Water and the like.*

This relates to apparatus for use in connexion with the straining, aerating, filtering and reheating of bath water and the like, and consists of a housing or frame fitted with perforated trays through which the water falls shower fashion, in combination with adjustable louvres or shutters on each side of the said frame whereby the air and light may be regulated to suit requirements.

13,662 of 1906.—W. B. HEAP: *Tiles for Roofing.*

This relates to tiles for roofing purposes and consists in the employment at one end of a transverse rest bar, from the end face of which the nibs by which the tiles are hung from the laths extend beyond the end of the tile.

14075 of 1906.—W. P. THOMPSON (A. D. ANDERSON): *Presses.*

This relates to a shell for presses, comprising a series of bars arranged substantially in circular series and of such a shape that when assembled they produce a series of openings of substantially the same size, which openings remain constant for a given distance, notwithstanding wearing away of the bars.

14,267 of 1906.—DAVY BROS., LTD., and T. E. HOLMES: *Overload Safety Gear for Overhead Travelling Cranes.*

This relates to overload safety gear for cranes, and consists essentially in the combination with a crane winding rope or chain of a guide for the tail portion of said rope or chain or for a flexible member constituting an equivalent therefor, and a counterpoise supported by said portion or equivalent the guide being adapted to offer frictional resistance to the passage of the rope or chain or equivalent flexible member under the stress of the load, and the counter poise being adapted in conjunction with said frictional resistance to balance the maximum working load on the crane.

7,852 of 1906.—C. M. C. HUGHES, T. H. QUINLAN, and R. MIDDLETON: *Machine for Moulding and Pressing Heated Plastic Material.*

This relates to a machine for making blocks or other articles from plastic materials, and consists in the combination with a hopper and mixing chamber of a mould feeding plunger, a plunger for pushing the filled moulds upon a clamp and an hydraulic press for compressing the moulded articles, a feed table for bringing the moulds within reach of the other parts of the machine, and a reciprocating feed plunger which causes the moulds to be successively passed from the feed table to the operating parts of the machine.

8,061 of 1906.—A. HOFFELT: *Safety Devices for Hoisting Apparatus and the like.*

This relates to a safety device for hoisting apparatus and the like, and consists of a gripping piece adapted to engage the runners, in which the gripping face is of comparatively large area the whole of which is provided with pyramida projections forming diamond-shaped points to engage the runners.

8,222 of 1906.—C. WILLETTS, JUN., and A. H. ROTHAN: *Worm and Worm-wheel Pulley Blocks, Hoists, and the like.*

This relates to a worm and worm-wheel pulley block, hoist lift and the like, and consists in the combination with the worm shaft of a friction collar fixed thereon and bearing against the face of a rachet wheel controlled by a pawl or the like so as to turn only in the direction to lift the load, and a brake-controlled lever and connexions adapted to move the worm shaft endwise to separate the frictional surfaces of the brake and allow the worm shaft to be turned by the suspended load.

8,855 of 1906.—A. W. ADAMS: *Door Springs and Checks.*

This relates to a checking device for doors in which a number of cylinders are formed or fixed together side by side in one plane, and the pistons or plungers are correspondingly united.

14,363 of 1906.—J. R. PEIRCE: *Machines for Making Mosaic Floors and the like.*

This relates to a machine for making mosaic floors and the like in which a number of blocks are fed simultaneously and in adjacent lines by the use of a number of inclined chutes.

14,813 of 1906.—S. S. HELLYER: *Latches or Locks for Flushing when the Latches or Locks are actuated.*

This relates to a lock or latch provided with a spindle additional to that which ordinarily operates the latch, lock, or like bolt, the said additional spindle operating the latch or lock and also operating a bar capable of moving longitudinally on or in guides in the box, or casing of the latch or lock the end of the said bar projecting outside the box or casing and being provided with means for connexion with a device for operating the flushing apparatus.

14,829 of 1906.—H. J. HASKINS: *Chimney Pots and Ventilators.*

This relates to a chimney pot and ventilator, and consists of an internal cover, such cover having a dished or concave or recessed upper surface with tapering sides in combination with the trunk and head of chimney pots and the like.

17,385 of 1906.—W. O. MOODY: *Reversible Window Blind.*

This relates to means for enabling a window blind to be reversed, and consists in so shaping the inner faces of the parts forming the roller that oppositely inclined wedge or V-shaped grooves are formed for the purpose of receiving either end of the blind which is passed between said longitudinal parts, each end of such blind being provided with a pocket in which is fitted a wedge-shaped lath so as to key the blind end into one or other of the wedge or V-shaped longitudinal grooves in the roller.

17,754 of 1906.—G. R. MCKENZIE: *Mechanism for Operating Doors for Buildings.*

This relates to a mechanism for operating doors for buildings, and consists in the combination of a door, an arm fixed to it, and acting on a lever mounted on the pivot of the door and a connexion between the lever and a second door.

17,797 of 1906.—J. W. LEADLEY: *Closet Seats.*

This relates to a closet seat, and consists in the employment of dowels or pins secured in the members of the seat at right angles to the grain of the wood of which said members are composed, and parallel and near enough to the edges or ends of said members to admit of the hinge screws passing at right angles into or through the said dowels.

20,292 of 1906.—L. KAUFMANN: *Taps.*

This relates to a tap with elastic tensioning of the plug, and is characterised in that a spring is provided in the grooves and between the ring and the nut.

21,473 of 1906.—B. T. TAYLOR: *Apparatus for simultaneously producing supplies of Hot and Distilled Water.*

This relates to an apparatus for simultaneously producing supplies of hot and distilled water, and consists of a two-part cistern or cylinder, the one compartment containing a coil fed with steam ann having outlet and return hot-water circulating pipes connected with said compartment, and a branch leading from the delivery end of said steam coil to the other compartment in which the sterilised water is collected, which latter compartment is connected by an uptake pipe with an elevated cistern.

1,361 of 1907.—L. C. ASPREY: *Sliding Doors.*

This relates to cylindrical sliding doors hung from a circular rail and guided at the bottom by guides working between guide plates of corresponding circular form to that of the doors, in combination with a pair of cords, wires, or chains, each of which is fixed at one end near to the

[PATENTS.—*Continued on page* 551.

*** All these applications are in the stage in which opposition to the grant of Patents upon them can be made.**

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointments, xvii.; Auction Sales, xxxii.

Certain conditions, beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements: and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur.**

Competition.

* JULY 1.—**Kingstown.**—HOUSES FOR POOR.—The Kingstown U.D.C. invite competitive drawings for houses in Kingstown for the housing of the very poor. Premiums, 100*l.* and 20*l.* For further particulars refer to an advertisement in this issue.

Contracts.

BUILDING.

MAY 6.—**Barnsley.**—WAREHOUSES.—All trades (full tenders only), for excavating and levelling for proposed extensions, also erection of three warehouses, Peel-street, Barnsley. Plans may be seen, and quantities obtained, at office of Mr. P. A. Hinchliffe, A.R.I.B.A., 14, Regent-street, Barnsley.

MAY 6.—**Broughton.**—COTTAGE.—Edinburgh and District Water Trustees invite tenders for the mason, brick, carpenter, joiner, plumber, slater, plaster, and cement works in connexion with the cottage proposed to be erected near Broughton. Schedules of quantities may be obtained on application to Mr. Edward C. Carse, architect, 37, Frederick-street, Edinburgh.

MAY 6.—**Crawshawbooth.**—ALTERING SHOP.—For altering shop at Burnley-road, Crawshawbooth (opposite Bull Hotel). Mr. J. R. Sellers, auctioneer and valuer, Crawshawbooth.

MAY 6.—**Holmfirth.**—RESIDENCES.—The erection of two semi-detached residences, at St. John's-place, Holmfirth. Plans, specifications, etc., on application at offices of Messrs. Joshua Barraclough & Son, Holmfirth.

MAY 6.—**Leeds.**—BACK-TO-BACK HOUSES.—The erection of twelve back-to-back houses in Harehills-lane, Leeds, for Mr. T. H. Axe. Names to Messrs. Thomas Winn & Sons, architects and surveyors, 84, Albion-street, Leeds.

MAY 6.—**St. Nicholas, Cardiff.**—COTTAGE.—The erection of a cottage at St. Nicholas, near Cardiff. Plans and specification may be seen at office of Mr. C. H. Kempthorne, architect and surveyor, Albert-chambers, High-street, Cardiff.

MAY 7.—**Halifax.**—CAFE, ETC.—The erection of a *café* and three shops in King Edward-street, Halifax. Names to Mr. W. Clement Williams, architect, 29, Southgate, Halifax.

MAY 7.—**Macclesfield.**—STORE AND SHOP.—Macclesfield Gas Committee invite tenders for the erection of a store and fitters' shop at the Gas Works, and a brick boundary wall to gasholder yard. A copy of the specification and bill of quantities may be had from the Engineer, Mr. Newbigging, on deposit of 10s.

MAY 8.—**Cranbrook.**—BUILDINGS AT WORKHOUSE.—Cranbrook Guardians invite tenders for the erection of a chimney shaft and repairs to cookhouse and other buildings at the Workhouse at Cranbrook. Drawings and specifications of the works may be seen on application at the Workhouse. Forms of tender and any further information required may be obtained from Mr. C. Payne, surveyor, Cranbrook.

MAY 8.—**Elgin.**—INN.—Mason, carpenter, plumber, slater, plaster, and painter works in extending and rearranging the Market Inn, Elgin. Plans and specification to be seen with Mr. R. B. Pratt, architect, Town and County Bank Buildings, Elgin.

MAY 8.—**Lockwood.**—HOUSE.—The erection of two dwelling-houses at Lockwood. Plans may be seen, and bills of quantities obtained, at offices of Messrs. J. B. Abbey & Son, surveyors and architects, 34A, New-street, Huddersfield.

MAY 8.—**Manchester.**—BOUNDARY WALL.—Manchester Improvement and Buildings Committee invite tenders for the raising of the boundary wall at Philips Park Cemetery, on the south side of Clayton Vale-lane. Drawings may be seen, and specification, etc., obtained on application to the City Surveyor's Office, Town Hall, Manchester, on payment to the City Treasurer of 2*l.* 2s.

MAY 8.—**Mountain Ash, etc.**—BOUNDARY WALLS.—The Glamorgan C.C. invite tenders for (1) Erection of boundary wall and iron fencing at the County School site at Mountain Ash; (2) erection of boundary walls at the new school site at Abertridwr; (3) levelling playground, erection of retaining wall, etc., at the Nanthir Council School, Blaengarw. Plans may be seen, and copies of the specification obtained, for work No. 1, at the Mountain Ash Police-station; for work No. 2, at the Caerphilly Police-station; and for work No. 3, at the Pontycymmer Police-station. The plans and specifications for all the works may also be seen or obtained at offices of Mr. T. Mansel Franklen, Clerk of the Glamorgan C.C., Glamorgan County Offices, Westgate-street, Cardiff.

MAY 8.—**Pluscarden.**—RESTORATION AFTER FIRE.—The mason, carpenter, plumber, and slater works of restoration after fire at Stoneyfield, Pluscarden. The plans and specifications may be seen with Mr. John Wittet, architect, Elgin.

MAY 8.—**Upper Manbeen.**—COTTAGE.—The mason, carpenter, plumber, slater, and plaster works of a cottage, to be erected at Upper Manbeen. The plans and specifications may be seen with Mr. John Wittet, architect, Elgin.

MAY 9.—**Duffus.**—ALTERATIONS, ETC.—Mason, carpenter, plumber, slater, plaster, and painter works of alterations and repairs, as well as a new water supply, at the Manse and Manse Offices, Duffus. The plans and specifications may be seen with Mr John Wittet, architect, Elgin.

MAY 9.—**Huddersfield.**—HOUSES.—The erection of two dwelling-houses at Fartown, Huddersfield. Plans may be seen, and quantities obtained, at offices of Messrs. Sharp & Waller, architects and surveyors, 32, Bradford-road, Brighouse

MAY 9.—**Keighley.**—WORKSHOP.—The mason's, joiner's, slater's, plumber's, and ironwork required in the erection of a workshop in Goulbourne-street, Keighley, for the Keighley Ironworks Society, Ltd Plans may be seen, and quantities obtained, at the offices of the society.

MAY 9.—**Kirkburton.**—ORGAN CHAMBER.—The erection of a new organ chamber and other works to Kirkburton Church, Yorkshire. Plans and specification seen on application to Mr. Arthur Carter, Dene Works, Kirkburton. Quantities for the separate trades may be obtained on application to Mr. W. Morton, quantity surveyor, 27, John-street, Sunderland

MAY 9.—**Londonderry.**—ADDITIONS, ETC., TO COURT-HOUSE.—The Proposal Committee of the C.C. invite tenders for alterations, repairs, and additions to the Coleraine Court-house. Plans and specifications may be seen at County Surveyor's Office, County Court-house. Full particulars and conditions of tendering and forms of tender may be had from Mr. Thompson B. Adams, Secretary to C.C., County Court-house, Londonderry.

MAY 9.—**Lyminge.**—OFFICE, ETC.—Elham Guardians invite tenders for building an office and foundations for a weighbridge at the Workhouse, Lyminge. Plans and specifications can be seen at office of Mr. R. Lonergan, Clerk, 11, Cheriton-place, Folkestone.

MAY 10.—**Culter.**—ADDITIONS TO MILL.—Mason, carpenter, and slater works of additions to Barley Mill, at Kennerty Mills, Culter. Plans and specifications may be seen in the hands of Messrs. Alex. Stronach, jun., & Son, advocates, 20, Belmont-street, Aberdeen.

MAY 10.—**Foulsham.**—SCHOOL ENLARGEMENT.—Norfolk Education Committee invite tenders for the proposed enlargement and improvement of Foulsham school. Names to Messrs. Morgan & Buckingham, architects, 1, Upper King-street, Norwich, at whose offices plans and specification can be inspected, and bills of quantities obtained. A deposit of 1*l.* 1s. will be required.

MAY 10.—**Hopeman.**—SCHOOL WORKS.—The mason, carpenter, plumber, slater, plaster, and painter works of new offices and drainage at Hopeman Public School. The plans and specifications may be seen with Mr. John Wittet, architect, Elgin.

MAY 10.—**Paddock.**—DWELLING-HOUSES.—The erection of five dwelling-houses in Branch-street, Paddock. Plans may be seen, and quantities obtained, at Milnsbridge offices of Messrs. Lunn & Kaye, architects and surveyors, Milnsbridge and Huddersfield.

MAY 10.—**Troedyrhiw.**—HOUSES.—For the erection of three houses at Troedyrhiw. Plans and specification may be seen at office of Mr. J. L'ewellin Smith, M.S.A., architect, Aberdare.

MAY 11.—**Donaghmoyne.**—CHURCH WORKS.—Additions and improvements to St. Michael's Church, Donaghmoyne, Co. Monaghan, for the Very Rev. Canon O'Connor, P.P Plans and specifications may be seen at the Parochial House, Donaghmoyne, Carrickmacross, or at offices of Mr. J. V. Brennan, C.E., architect, Belfast Bank Chambers, Belfast.

MAY 11.—**Dublin.**—SCHOOL RESIDENCE.—For the erection of a new staff residence, Artane Industrial Schools. Bills of quantities may be obtained from Messrs. Mumby & O'Rourke, surveyors, 15, College-green, on deposit of 2*l.* 2s.

MAY 13.—**Angmering.**—ADDITIONS TO INFECTIOUS WARD.—East Preston Guardians invite tenders for the addition of a room and other work at the Infectious Ward at the East Preston Workhouse, near Angmering Station, Sussex. Plans and specifications may be seen at the office of the architect, Mr. Harold M. Potter, 41, Warwick-street, Worthing.

MAY 13.—**Bodmin.**—RESIDENCE.—The erection of a private residence and certain other works in Priory-avenue, Bodmin, for Mr. A. C. Pomery in accordance with plans, etc., which may be seen at office of Mr. William J. Jenkins, architect, Bodmin.

MAY 13.—**Dublin.**—EXTENSION OF OFFICES.—The Directors of the Great Northern Railway Company (Ireland) invite tenders for extension of general offices, Amiens-street, Dublin, and extension of post-office rooms, Portadown Station. Mr. T. Morrison, Secretary, Secretary's Office, Amiens-street Terminus.

MAY 13.—**Haworth, Harden, etc.**—POLICE-STATIONS, ETC.—The West Riding Standing Joint Committee invite tenders only in connexion with the undermentioned works, viz.:—Haworth New Police-station; Harden New Police-station; Knaresborough Court-house—additions and alterations. Plans may be seen, and bills of quantities obtained, on application to office of Mr. J. Vickers-Edwards, County Architect, County Hall, Wakefield. A deposit of 1*l.* is required in each case. Cheques, etc., must be made payable to the West Riding Treasurer.

MAY 13.—**Wolverhampton.**—EXTENSION OF ELECTRIC LIGHT STATION.—Wolverhampton Electricity Committee invite tenders for extensions to the Electric Lighting Station at Commercial-road. Plans and specification may be seen, and bill of quantities and form of tender obtained, on application at office of Mr. George Green, Borough Engineer, Town Hall, Wolverhampton, upon payment of a deposit of 1*l.* 1s.

MAY 14.—**Bangor.**—ORGAN CHAMBER.—Erecting an organ chamber and other works at the First Presbyterian Church, Bangor. Plans and specification may be seen at office of Messrs. Young & Mackenzie, architects, Scottish Provident-buildings, Belfast, and copies of schedule of quantities obtained from Mr. S. C. Hunter.

MAY 14.—**Cranbrook.**—ALTERATIONS TO POLICE-STATION.—Certain alterations at Police-station, ordered by the Standing Joint Committee. Tender form at the office of the County Architect, 86, Week-street, Maidstone. The plans and specification of the work can be inspected at the station daily.

MAY 14.—**Dunfermline.**—ADDITIONS, ETC., TO PREMISES.—The brick, joiner, plumber, plaster, and slater works of additions to and alterations on business premises, Townhill, belonging to Messrs. the Industrial Co-operative Society, Ltd. Plans and specifications may be seen, and all further information obtained, on application to Mr. James T. Scobie, architect.

MAY 14.—**Highfield and Birtley.**—SCHOOLS.—Durham C.C. Education Department invite tenders for new schools at Highfield (near Rowlands Gill) and Birtley. Plans, specifications, and general conditions of contract can be seen, and bills of quantities obtained, as follows:—For Highfield School, at the office of Messrs. Liddle & Browne, Prudential-buildings, Mosley-street, Newcastle-on-Tyne For Birtley School, at the office of Mr. J. W. Rounthwaite, 13, Mosley-street, Newcastle-on-Tyne.

MAY 14.—**Ynysddu.**—HOUSES.—The erection of ten or more houses, and also for the construction of a back lane, at Ynysddu (Mon.), for the "Greenfield Building Club." Plans and specification can be seen at the office of Mr. W. A. Griffiths, architect, Pontllanfraith, Mon.

* MAY 16.—**Godalming.**—MUNICIPAL BUILDINGS.—The Godalming Corporation invite tenders for new Municipal Buildings and for alteration and additions to the Borough Hall. For further particulars refer to an advertisement in this issue.

MAY 22.—**Cambuslang.**—BATTERY HOUSE, ETC.—The C.C. of the County of Lanark invite tenders for the erection of a battery house and relative works. Plans may be seen, and copies of the specification and schedule of measurement obtained, at the office of Mr. W. L. Douglas, C.E., District Engineer, District Offices, Hamilton, on payment of 1*l.* An assistant engineer will meet intending contractors at the Electricity Works, Bothwell-street, Cambuslang, at 10.30 a.m. on May 7.

* MAY 23.—**Tooting.**—HALL.—The Guardians of the Wandsworth Union invite tenders for the erection of a hall at the Tooting Home, Church-lane, Tooting. For further particulars refer to an advertisement in this issue.

MAY 24.—**Doagh.**—CHURCH.—For erecting new church near Doagh for the Committee of Donegore Second Presbyterian Church Plans and specification may be seen at the office of Mr. W. D. R. Taggart, architect, 2, Wellington-place, Belfast.

* MAY 25.—**Biddulph.**—NEW SCHOOLS.—The Staffs Education Committee invite tenders for proposed new Council Schools at Biddulph and Biddulph Moor to accommodate 708 and 306 children respectively. For further particulars see advertisement in this issue.

* MAY 31.—**Ipswich.**—HOSPITAL.—Tenders are invited for additions and alterations to the hospital, East Suffolk and Ipswich. For further particulars see advertisement in this issue.

NO DATE.—**Aston Manor.**—ROOF OF LAUNDRY.—Aston Manor Baths Committee invite tenders for taking down and rebuilding the roof over laundry. Plans and specifications may be seen, and all particulars obtained, at offices of Mr. G. H. Jack, Borough Engineer and Surveyor, Council House, Aston Manor.

NO DATE.—**Batley.**—REPAIRS TO TOWER.—Batley Corporation invite tenders for pointing and repairs to tower and spire at cemetery. Apply to Mr. W. H. Atkinson, at the cemetery.

* NO DATE.—**Bedford.**—HOTEL.—Tenders are invited for alterations and additions to the Swan Hotel, Bedford, for Mr. H. Browning. For further particulars see advertisement in this issue.

NO DATE.—**Belfast.**—VILLA.—For one large villa and fifteen workers' houses. Plans and specifications can be seen at office of Messrs. John Andrews & Co., Comber.

NO DATE.—**Bridgend.**—EXTENSIONS.—Alterations and extensions at Court Colman, Bridgend, for Mr. R. W. Llewellyn. Apply to Messrs. Cook & Edwards, architects, Masonic Buildings, Bridgend. A deposit of 1*l.* 1s. will be required.

NO DATE.—**Castleford.**—ALTERATIONS, ETC., TO PREMISES.—The alterations, additions, etc., to premises in Carlton-street and Station-road, Castleford, for the Castleford Industrial Co-operative Society. Names to Messrs. Garside & Pennington, architects and surveyors, Pontefract and Castleford.

NO DATE.—**Chesterfield.**—RESIDENCE.—The erection and completion of (1) new villa residence, Baslow-road, Chesterfield; (2) new offices, Whittington Moor. Plans and specifications and bills of quantities and all further information from Mr. W. Cecil Jackson, architect and surveyor, 29, Knifesmith-gate, Chesterfield.

NO DATE.—**Creswell.**—PRIMITIVE METHODIST CHURCH.—The erection and completion of a Primitive Methodist Church at Creswell. Names to Mr. Fredk. Hopkinson, architect and surveyor, Worksop, Dinnington, and Chesterfield.

* NO DATE.—**Devonport.**—REAPPROPRIATION OF BLOCK.—The War Department invite tenders for the work proposed in the reappropriation of "E" block, as nursing sisters' quarters and administration block, Devonport Hospital, in the Southern Command, Plymouth sub-district. For further particulars refer to an advertisement in this issue.

NO DATE.—**Grange-over-Sands.**—ADDITIONS, ETC.—The additions and renovations to Hartlands, Grange-over-Sands, for Mr. S. Hart-Jackson. Plans and specifications may be seen, and other information obtained, by applying to Mr. John Stalker, M.S.A., architect, 57, Highgate, Kendal.

NO DATE.—**Hexham.**—RESTORATION, ETC., OF SLALEY CHURCH.—Mr A. B. Plummer, F.R.I.B.A., Diocesan Architect, Newcastle-on-Tyne.

NO DATE.—**Keighley.**—FARM BUILDINGS.—The several works required in the erection of farm buildings at Steeton Hall. Plans may be seen, and bills of quantities obtained, at offices of Messrs. Moore & Crabtree, architects, York chambers, Keighley.

NO DATE.—**Leeds.**—BATHS, ETC.—For baths, and fixing complete in twenty-two scullery-houses. State cost with copper boilers, also with iron boilers; hot and cold water; cost for baths and fixing; without water; full sized baths not required. Tenders to be sent to Mr. Seth Payne, Unity Villa, 71, Cross Flatts-avenue, Beeston, Leeds.

NO DATE.—**Monaghan.**—SEMINARY BUILDINGS.—The erection and completion of additional buildings (laboratories, dormitories, etc.) to St. Macarten's Seminary, Monaghan, for the Very Rev. Thomas O'Doherty, President. Copies of plans and specifications can be obtained on application to Mr. J. J. M'Donnell, architect, 27, Chichester-street, Belfast.

NO DATE.—**Rochdale.**—SCHOOL ALTERATIONS.—For proposed alterations at St. James's School, Rochdale. Names at once to the Vicar, St. James's Vicarage.

NO DATE.—**Stubshaw Cross.**—SUNDAY SCHOOL.—A new Independent Methodist Sunday School at Stubshaw Cross. Plans and specifications can be had on application to Mr. W. Tunstall, 347, Bolton-road, Stubshaw Cross, on deposit of 2*l.* 2s.

ENGINEERING, IRON, AND STEEL.

MAY 7.—**East Ham.**—ELECTRIC LIGHT INSTALLATION.—The B.C. invite tenders for the wiring and fittings for the new Central Carnegie Library Buildings, situate in High-street South, adjacent to the Town Hall, East Ham. Full particulars, form of tender, and specification, may be obtained at the offices of the electrical engineer, Mr. W. C. Ullmann, M.I.M.E., Nelson-street, East Ham, between the hours of 10 a.m. and 4 p.m.

MAY 7.—**Halifax.**—GIRDERS, ETC.—Halifax Gasworks Committee invite tenders for the supply and delivery of the following materials:—Contract No. 1. about 100 tons of mild steel compound girders; contract No. 2. about 12 tons of steel rails, including crossover, switches, etc. Full particulars and forms of tender may be obtained on application to Mr. H. Wilkinson, Engineer and Manager, Gasworks, Halifax.

MAY 7.—**London.**—RAILS, ETC.—The Secretary of State for India in Council invites tenders for the supply of:—(1) Rails and fishplates; (2) dog spikes. The conditions of contract may be obtained on application to the Director-General of Stores, India Office, Whitehall, S.W.

MAY 8.—**Huddersfield.**—CRANE, ETC.—Corporation of Huddersfield invite tenders for a locomotive crane, grab, and traverser. Plans, specifications, etc., may be seen, and forms of tender obtained, on application at the offices of the Borough Engineer and Surveyor, 1, Peel-street.

MAY 8.—**London.**—SPRING STEEL, ETC.—The East Indian Railway Company invite tenders for the supply and delivery of:—(1) Spring steel; (2) metals (antimony, brass, copper, lead, zinc, etc.); (3) picks, phowrahs, shovels, etc., as per specifications, to be seen at the Company's Offices. For each specification a fee of 1*l.* 1s. is charged, which cannot, under any circumstances, be returned.

MAY 10.—**Blairgowrie.**—RAISING EMBANKMENT, ETC.—Blairgowrie, Rattray, and District Water Board invite tenders for raising Loch Benachally embankment 3 ft., constructing a screening house, providing and laying fireclay pipes, etc. Plans may be seen, and copies of the specification and schedule obtained, at the office of the engineers, Messrs. J. & A. Leslie & Reid, C.E., 72a, George-street, Edinburgh, on payment of 1*l.*

MAY 10.—**Stretford.**—PLANT.—Stretford U.D.C. Electricity Committee invite tenders for:—Contract No. 24, condensing plant and accessories; contract No. 25, switchboard, instruments, and electrical connections for 500 k.w. generator. Forms of tender and specifications may be obtained from Mr. Geo. H. Abrahams, Clerk to the Council, Council Offices, Old Trafford, on payment of a deposit of 1*l.* 1s., and further information may be obtained from the consulting engineer, Mr. T. L. Miller, M.Inst.C.E., 19, Brazennose-street, Manchester.

MAY 11.—**Holm.**—BRIDGE.—The Turriff District Committee invite offers for building bridge at Holm over Burn at King Edward. Mr. John R. Douglas, Road Surveyor, Turriff, will show plan and specifications.

MAY 11.—**Hull.**—ELECTRIC RECORDERS.—Hull Corporation invite tenders for the supply and erection of two electric water-level indicators and recorders at Keldgate Reservoir, Cottingham. Copy of specification and form of tender may be obtained at the office of Mr. F. J. Bancroft, Water and Gas Engineer, Alfred Gelder-street, Hull, on payment of 1*l.*

MAY 16.—**Leominster.**—CORRUGATED IRON ROOFING.—The London and North-Western and Great Western Joint Railways Joint Committee invite tenders for the covering of a footbridge at Leominster Station, Herefordshire. Plan and specification may be seen, and form of tender obtained, at the office of the Joint Engineer, Woodside Station, Birkenhead.

MAY 22.—**Cambuslang.**—ELECTRICITY WORKS.—The C.C. of Lanark invite tenders for the construction, supply, and erection of motor generator, alternating and direct current switch gear, etc. Specifications and conditions may be had on application to Mr. Thos. Munro, County Clerk, County Offices, Hamilton, on payment of 2*l.*

MAY 24.—**Rosehearty.**—HARBOUR WORKS.—The Rosehearty Harbour Commissioners invite offers for the construction of works in the extension of Rosehearty Harbour, in the County of Aberdeen, in accordance with plans and supecifications, which may be seen at the office of the Clerk to the Commissioners at Rosehearty, or with Mr. James Barron, M.Inst.C.E., Central Chambers, 216, Union-street, Aberdeen, from whom schedules of quantities can be obtained on payment of 1*l.*

MISCELLANEOUS.

MAY 6.—**Partick.**—BOWLING GREENS.—The supply and laying of the best quality turf for two bowling greens, Victoria Park. The foundation work will be provided. Price per square yard to include bed of good sand and levelling. Offers to state where the turf is to be taken from, and to be lodged with Mr. John Bryce, Burgh Surveyor, 1, Maxwell-street, Partick.

MAY 6.—**Stretford.**—GAS OIL.—The Directors of the Stretford Gas Company invite tenders for about 600 tons of gas oil (suitable for use in carburetted water gas plants) during the twelve months ending June 30, 1908. Form of tender to be obtained from the Secretary, Gasworks, Stretford.

MAY 6.—**York.**—CEMENTING.—York Corporation invite tenders for forming cement advertising panels at the Cattle Market. Particulars can be obtained on application at office of Mr. F. W. Spurr, Acting City Surveyor, Guildhall, York.

MAY 7.—**Halifax.**—SCAVENGERS' BROOMS.—Halifax Health Committee invite tenders for the supply of 100 dozen scavengers' brooms. Further particulars may be obtained on application to Mr. D. Travis, Sanitary Inspector, Town Hall, Halifax.

MAY 7.—**London.**—CREOSOTE.—Great Western Railway directors invite tenders for the supply of about 20 000 galls. of creosote per week for the twelve months commencing June 1, 1907. Forms of tender may be obtained on application to Mr. G. K. Mills, Secretary, Paddington Station, London.

MAY 7.—**Manchester.**—TIMBER.—Manchester Corporation Tramways Committee invite tenders for the supply of a quantity of thoroughly seasoned timber, for immediate use. Specifications and forms of tender may be obtained on application to Mr. J. M. M'Elroy, General Manager, Tramways Department, 55, Piccadilly, Manchester.

MAY 7.—**Warrington.**—TRAMCAR COVERS.—Warrington Electricity and Tramways Committee invite tenders for six tramcar covers. Specification and form of tender may be obtained on application to Mr. F. V. L. Mathias, A.M.Inst.E.E., Borough Electrical and Tramways Engineer, Howley, Warrington, on payment of 1*l.* 1s. Five shillings will be charged for extra copies of specification.

MAY 8.—**Bradford.**—CARTING.—The Bradford Corporation invite tenders for the cartage of limestone and other road metal; also for the team labour required in the cleansing and maintenance of the macadamised roads within the several districts of the city. Forms of tender and all necessary information may be obtained on application at the office of Mr. J. H. Cox, City Surveyor, at the Town Hall.

MAY 8.—**Manchester.**—TILED DADOS.—Manchester Education Committee invite tenders for supplying and fixing tiled dados at the Mansfield-street (Ardwick) and Seymour-road (Clayton) Municipal Schools, in accordance with a specification, which may be obtained at the offices in Deansgate, Manchester, on a deposit of 1*l.* 1s.

MAY 9.—**Hackney.**—WATER VANS.—Hackney B.C. invite tenders for the supply and delivery of five new water vans for road watering, and three road-sweeping machines. Further particulars may be obtained on application to Mr. Norman Scorgie, M.Inst.C.E., Borough Engineer and Surveyor, Town Hall, Hackney, N.E.

MAY 13.—**Kingston.**—TIMBER.—Kingston Guardians invite tenders for the supply of 150 fathoms of best Swedish board ends, square edge, for the Workhouse. Forms not issued. Mr. Jas. Edgell, Solicitor, Clerk, Union Offices, Coombe-road, Kingston-on-Thames.

MAY 14.—**Richmond (Ireland).**—LOCKS.—Richmond Joint Committee of Management of the District Asylum invite tenders for 120 locks, to be similar in size to a sample to be seen at the Asylum Stores, Grangegorman.

MAY 15.—**Dublin.**—SLEEPERS.—Dublin and South-Eastern Railway Directors invite tenders for the supply of 30,000 rectangular sleepers, 8 ft. 11 in. by 10 in. by 5 in. Specifications and forms of tender can be had on application to Mr. S. J. Shannon, No. 1, Westland-row, Dublin.

MAY 20.—**Bristol.**—ARC LAMPS.—Bristol Corporation Electrical Committee invite tenders for A.-C. and D.-C. flame arc lamps. Copies of specification, form of tender, and further particulars may be obtained from Mr. H. Faraday Proctor, City Electrical Engineer, City Electrical Engineer's office, Temple Back, Bristol, on payment of 2*l.* 2s. deposit.

* JUNE 4.—**Southampton.**—TIMBER.—The Director-General, Ordnance Survey, invites tenders for supply of deals and matched boarding. For further particulars see advertisement in this issue.

NO DATE.—**Creigiau.**—UNWATERING.—Contract wanted to unwater South Cambria Colliery, Creigiau, near Cardiff. Estimated contents workings about 4,000,000 gallons. For particulars apply Mr. Rees Roderick, Manager, as above.

NO DATE.—**Garw Valley.**—DRIVING A SLANT.—For driving a slant at Braichycymmer Collieries, Garw Valley. For particulars apply Garw and Braichycymmer Collieries (Ltd.), Bridgend.

NO DATE.—**Newcastle-on-Tyne.**—PULLING DOWN.—Pulling down and removing materials at premises situated in Westgate-road, adjoining the Literary and Philosophical Society's Library. Plan and specification can be seen at the offices of Mr. Frank W. Rich, 1, Eldon-square.

NO DATE.—**Ryhope.**—TIMBER.—Ryhope Coal Company, Ltd., invite tenders for the supply of timber for the year ending June 1, 1908. For forms of tender apply to the Colliery Office, Ryhope, near Sunderland.

NO DATE.—**Wigan.**—BORING.—For boring 50 yds., near Wigan. Contractor to find all tackle. Apply Messrs. Marsh & Rigby, mining engineers, Kingstreet, Wigan.

NO DATE.—**Wigan.**—SINKING SHAFT.—For sinking a pit shaft. Sections and specifications can be seen on application to Mr. R. F. Clark, Bickershaw Colliery, near Wigan.

PAINTING, etc.

MAY 6.—**Chertsey.**—PAINTING, ETC.—Chertsey Guardians invite tenders for painting the outside wood, ironwork verandah, etc., of the Infirmary at the Union Workhouse, Ottershaw, Chertsey, according to a specification, copy of which may be obtained on application to the Master of the Workhouse at Ottershaw aforesaid.

MAY 6.—**Portsmouth.**—CLEANING, PAINTING, ETC.—Portsmouth Corporation invite tenders for cleaning, painting, and decorating the Council Chamber, in the Town Hall, Portsmouth. On payment to Mr. Alexander Hellard, Town Clerk, Town Hall, Portsmouth, of a deposit of 2*l.* 2s. the specification and form of tender may be obtained, and the drawings may be seen at the offices of Mr. C. W. Bevis, F.R.I.B.A., Elm-grove-chambers, Elm-grove, Southsea.

MAY 6.—**Rochdale.**—PAINTING.—The Rochdale Corporation invite tenders for painting the railings at Broadfield Park, etc. Specification and further particulars may be obtained at the office of the Borough Surveyor, Town Hall, or from the Park Keeper.

MAY 6.—**York.**—PAINTING.—York Corporation invite tenders for painter's work at the Cattle Market. Specification, etc., may be obtained at office of Mr. F. W. Spurr, Acting City Surveyor, Guildhall, York.

MAY 7.—**Saltash.**—PAINTING.—The directors of the Great Western Railway invite tenders for painting the Royal Albert Bridge, Saltash. Paint will be supplied by the company. Specification may be seen, and forms of tender, etc., obtained, at the office of the engineer, at Plymouth (North-road) Station.

MAY 8.—**Lanchester.**—PAINTING.—Tenders are invited for painting the outside wood and ironwork of some of the Workhouse buildings. Specifications, etc., can be obtained on application to Mr. R. J. Waites, the Master.

MAY 9.—**Halifax.**—PAPERING, ETC.—Halifax Finance Committee invite tenders for papering, varnishing, whitewashing, and cleaning the Borough Accountant's offices at the Town Hall. Specifications may be seen, and forms of tender obtained, on application to Mr. James Lord, C.E., Borough Engineer, Town Hall, Halifax.

MAY 9.—**West Derby.**—PAINTING.—West Derby Guardians invite tenders from local firms for painting, etc., at the Infirmary, Mill-road, Liverpool. Specification to be seen at the Steward's office at the Infirmary.

MAY 10.—**Derby.**—PAINTING, ETC.—Derby Guardians invite tenders from Derby painters for certain limewashing and painting at the Union Workhouse, Derby. Form of tender and specification can be obtained from Mr. N. Twigge, Clerk to the Guardians, Poor Law Offices.

MAY 10.—**Pershore.**—PAINTING.—Pershore Guardians invite tenders for painting the interior of the Workhouse Infirmary. Forms of tender, specification, and further particulars can be obtained on application to the Master of the Workhouse.

MAY 11.—**Wakefield.**—PAINTING.—Wakefield Corporation invite tenders for painting, colouring, whitewashing, etc., required to be done at the Infectious Diseases Hospital, Park Lodge-lane. Forms of tender, specification, etc., to be obtained from the Sanitary Inspector, at the Town Hall, between 9 and 10 a.m. on any weekday.

MAY 13.—**Aldershot.**—PAINTING, ETC.—Aldershot U.D.C. invite tenders for painting the fencing surrounding the Municipal Gardens, and for certain painting and repair to the orderly trucks and tumbler carts. Specifications for the respective works may be seen upon application at office of Mr. Fred. C. Uren, District Surveyor, Surveyor's Department, Municipal Buildings, Aldershot.

✱ MAY 15.—**Sutton.**—CLEANING AND PAINTING.—The Metropolitan Asylums Board invite tenders for cleaning and painting work at the Downs School, Banstead-road, Sutton, Surrey. For further particulars see advertisement in this issue.

MAY 21.—**West Suffolk.**—PAINTING.—West Suffolk Education Committee invite tenders for painting, etc., at the following Council Schools:—Bildeston, Lavenham, Stradishall, Clare, Nedging, Wixoe, Hadleigh, and Polstead. Specification and form of tender may be obtained upon application to the building inspector, Mr. A. Ainsworth Hunt, 5, Crown-street, Bury St. Edmund's, or Market Hill, Sudbury.

NO DATE.—**Houghton, etc.**—PAINTING.—For the painting, etc., of the following schools:—Eastington-lane, Eppleton, Hetton (girls and infants), Houghton Council (mixed and infants), North Hetton, West Herrington, Usworth Central, Newbottle, Newbottle St. Matthew's. Forms of tender may be obtained from the District Clerk, Mr J. P. Tulip, Saville House, Houghton-le-Spring.

NO DATE.—**Leeds.**—PAINTING.—Painting and papering West Hunslet Conservative Club, Dewsbury-road, Leeds. Specifications may be seen on premises. Mr. A. Barlow, Secretary.

ROADS, SANITARY, AND WATER WORKS.

MAY 4-17.—**Tow Law.**—SEWERAGE WORKS.—The U.D.C. of Tow Law invite tenders for the construction of sewage tanks, also outfall and intercepting sewers for part of Tow Law. Names and addresses not later than May 4 next to Mr. John Hillary, Surveyor to the Council, Tow Law, accompanied by a deposit of 2*l*.

MAY 6.—**Presteign.**—STREET IMPROVEMENT.—Presteign U.D.C. invite tenders for making and laying concrete in situ paving, and laying paving slabs, kerbs, channels, pitching, etc., in the town of Presteign. Specifications may be obtained from, and plans inspected at, the U.D.C. Offices, Broad-street, Presteign.

MAY 6.—**St. Marylebone.**—OLD GRANITE PAVING.—The Council of the Metropolitan Borough of St. Marylebone invite tenders for the purchase, taking up, and carting away of old granite paving from streets. Further particulars may be obtained of Mr. J. Paget Waddington, M.Inst.C.E., Borough Surveyor, and forms of tender may be had on application to the Town Hall, Marylebone-lane, Oxford-street, W.

MAY 6.—**Shenfield, Billericay.**—ROAD WORKS.—The R.D.C. invite tenders for stubbing-up and removal of hedge and bank, about 736 ft. in length, in Priest-lane, Shenfield, near to Shenfield Common, according to plans and specifications to be seen on appointment with Mr. F. E. Ennals, surveyor, Shelly-road, Hutton.

MAY 6.—**Troon.**—NEW SEA OUTFALL AND MAIN SEWERS.—The T.C. of Troon invite tenders for the construction of main sewers for new sea outfall on North Beach, etc. Plans may be seen, and copies of the specification and schedule of quantities obtained, from the engineers, Messrs. J. & H. V. Eaglesham, 24, Wellington-square, Ayr, on payment of 1*l*.

MAY 7.—**Margate.**—ROAD WORKS.—Margate T.C. invite tenders for the making-up of roads. The plans and specifications can be seen, and all particulars obtained, on application to Mr. E. A. Borg, C.E., Borough Surveyor, Town Hall, Margate.

MAY 7.—**Munnoch, Ayrshire.**—PIPE LAYING.—Irvine and District Water Board invite tenders for laying about 370 yds. of 18-in. cast-iron pipes at their Munnoch Reservoir, which is situated about three miles from Dalry, Ayrshire. Plans may be seen, and copies of specification and schedule obtained, from the Engineer, Mr. G. Christie, Howgate, Kilwinning, on payment of 1*l*.

MAY 7.—**New Southgate.**—MAKING-UP.—East Barnet Valley U.D.C. invite tenders for making-up and sewering part of East Barnet-road, New Southgate. Plans and specification may be seen, and form of tender obtained, on application to Mr. Henry York, A.M.Inst.C.E., the Council's Surveyor, at the Council's Offices, Station-road, New Barnet.

MAY 9.—**Croydon.**—TARRING ROADS.—Croydon R.D.C. invite tenders for tarring and sanding various roads in their district, the approximate area being 100,000 yds. super. Further particulars can be obtained from the Council's Highway Surveyor, Mr. J. S. Killick.

MAY 9.—**Duffus.**—WATER SUPPLY.—For mason, carpenter, plumber, slater, plaster, and painter works of alterations and repairs, as well as a new water supply, at the Manse and Manse Offices, Duffus. The plans and specifications may be seen with Mr. John Wittet, architect, Elgin.

✱ MAY 9.—**Hampstead.**—WOOD PAVING.—The Hampstead B.C. invite tenders for paving certain portions of Finchley-road. For further particulars refer to advertisement in this issue.

MAY 9.—**Knighton.**—SINKING A WELL.—Knighton R.D.C. will consider tenders for the sinking of a well at Lloiney, near Knighton, and for the providing and fixing of a pump in connexion therewith. Specification may be seen on application at the Clerk's Office.

MAY 9.—**Leeds.**—PAVING AND FLAGGING.—Leeds Highways Committee invite tenders for the paving and flagging of streets. Drawings may be seen at the City Engineer's Office, Municipal Buildings. Forms of tender and bills of quantities may be obtained, and copies of the documents forming the contract inspected, on application at the Highways Office, 155, Kirkstall-road.

MAY 9.—**Newmarket.**—ROAD METALLING.—The Newmarket U.D.C. invite tenders for the supply of 1,000 tons (more or less) of the best broken granite metalling; also 500 tons (more or less) of slag. Forms of tender may be obtained on application to Mr. S. J. Ennion, Clerk to the Council, Devas-chambers, Newmarket.

MAY 9.—**Stockport.**—STREET WORKS.—Stockport Highways and Sewers Committee invite tenders for the manual and team labour and materials required in excavating, sewering, forming, paving, kerbing, and flagging streets. Plans, sections, specifications, and conditions may be seen and form of tender obtained, on application to Mr. John Atkinson, A.M.Inst.C.E., Borough Surveyor, Borough Surveyor's Office, Stockport.

MAY 10.—**Buttevant.**—WATERWORKS.—Mallow R.D.C. invite tenders for the construction of intake works and service reservoir, and for providing and laying about 16,000 yds. of cast-iron water mains. Plans and specification may be seen, and bill of quantities with form of tender obtained, at the office of the Clerk to the Council, Mallow, or at the offices of Messrs. W. H. Hill & Sons, South Mall, Cork, on payment of the sum of 2*l*.

MAY 11.—**Highleadon.**—ROAD, ETC.—The construction of a proposed new road and ferro-concrete bridge over the River Leadon to connect Highleadon and surrounding district with Barber's Bridge Station (G.W.R.), and with the Newent, Upleadon, Tibberton, and Gloucester roads at Highleadon Green. Drawings may be inspected, and copies of the specification and quantities obtained, at office of Mr. Henry J. Weaver, F.G.S., A.M.Inst.M.E., civil engineer, Northgate-mansions, Gloucester, on payment of 1*l*. 1s.

✱ MAY 13.—**Acton.**—PUMPING INSTALLATION.—The Acton U.D.C. invite applications from actual manufacturers for supply of direct coupled electricity driven turbo or centrifugal pumping machinery of large capacity, etc. For further particulars refer to advertisement in this issue.

MAY 13.—**Harpenden.**—KERBING.—Hertfordshire C.C. invite tenders for certain works of kerbing to footpaths adjoining main roads in the town of Harpenden. A copy of the specification and schedule of works and a form of tender can be obtained at the County Surveyor's Office, Hatfield, upon payment of 1*l*. 1s.

MAY 13.—**Rawtenstall.**—STREET WORKS.—Rawtenstall Corporation invite tenders for the manual and team labour and materials required in excavating, sewering, forming, paving, kerbing, and flagging Roberts-street, Taylor-street, Rockliffe-street, Woodcroft-street, back Woodcroft-street, and Thorn-street, and for the sewering of Fall Barn-road. Plans, sections, specifications, and conditions may be seen, and forms of tender obtained, on application to Mr. James Johnson, Borough Surveyor, Municipal Offices, Rawtenstall, on payment of the sum of 2*l*. 2s.

✱ MAY 13.—**St. Marylebone.**—PUBLIC CONVENIENCE.—The Metropolitan B.C. of St. Marylebone invite tenders for underground public convenience in St. John's Wood-road, near its junction with Maida Vale. For further particulars refer to an advertisement in this issue.

✱ MAY 13.—**St. Marylebone.**—PUBLIC CONVENIENCE.—The Metropolitan B.C. of St. Marylebone invite tenders for the extension, alteration, and entire refitting of existing ladies' underground convenience, Oxford-circus, W. For further particulars refer to an advertisement in this issue.

MAY 14.—**Bromley.**—TAR SLAG MACADAM.—Bromley B.C. invite tenders for about 2,000 yds. super. of tar slag macadam, in accordance with the specification prepared by the Borough Engineer. Specification and form of tender may be obtained on payment of 10s. at office of Mr. Fred. H. Norman, Town Clerk, Bromley, Kent.

MAY 14.—**Hoddesdon.**—MAKING-UP ROAD.—Hoddesdon U.D.C. invite tenders for the making-up of a private street known as Briscoe-road, in the Urban District of Hoddesdon. Plans and sections may be seen at the office of Mr. W. H. Flood, the Surveyor to the Council, High-street, Hoddesdon, from whom copies of the specification, etc., may be obtained on payment of the sum of 10s. 6d.

MAY 14.—**Hoddesdon.**—SURFACE-WATER DRAIN.—Hoddesdon U.D.C. invite tenders for the construction of about 324 yds. of 6-in. stoneware pipe surface-water drain. Plans and specifications of the works may be seen, and form of tender obtained at the office of Mr. W. H. Flood, the Surveyor to the Council, High-street, Hoddesdon.

✱ MAY 14.—**London.**—PAVING WORKS.—The Streets Committee of the Corporation of London invite tenders for paving works. For further particulars see advertisement in this issue.

MAY 14.—**Mistley.**—SEWER.—Tendring R.D.C. invite tenders for laying 265 yds. of 9-in. sewer in Gravel-lane, Mistley, with manholes, ventilating shafts, and other necessary works. Drawings and specifications, quantities, and forms of tender may be obtained at the office of Mr. H. H. Packer, F.I.A.S., Dovercourt, Surveyor to the Council.

✱ MAY 14.—**Willesden.**—ROAD-MAKING AND PAVING.—The Willesden D.C. invite tenders for road-making and paving works in Berry-street, Holly-lane, and Yuletide-road, Willesden. For further particulars refer to an advertisement in this issue.

MAY 15.—**Llandilo-Talybont.**—WATER SUPPLY.—Swansea R.D.C. invite tenders for the supply of spigot and socket pipes (four contracts). Specifications, quantities, and forms of tender may be obtained from Mr. T. Trevor Williams, Engineer to the Council, at his offices, Alexandra-road, Swansea; or from Mr. Edward Harris, Clerk, District Council Offices, Alexandra-road, Swansea, on payment of the sum of 2*l*. 2s.

✱ MAY 15.—**Wood Green.**—ROAD-MAKING.—Tenders are required for constructing a new road at Wood Green, N. For further particulars refer to an advertisement in this issue.

MAY 18.—**Ebbw Vale.**—ROAD IMPROVEMENTS.—Ebbw Vale U.D.C. invite tenders for the work required in widening Libanus-road and the approach road to Sunny Bank Houses and Mount Pleasant-road. Plan and specification may be seen, and form of tender with bill of quantities obtained, by appointment at the office of Mr. T. J. Thomas, the Town Surveyor. A deposit of 10s., which must be made in postal orders, will be required from each person who obtains a copy of the form of tender and bill of quantities.

MAY 18.—**Glasgow.**—PAVING.—Glasgow Corporation invite tenders for executing paving works (eight districts). Specifications and forms of tender and a description of said districts may be had on application at the office of Public Works, City Chambers, 64, Cochrane-street.

MAY 18.—**Skipton.**—STREETS.—Skipton U.D.C. invite tenders for the surface-water draining, paving, macadamising, flagging, and completing of streets in Skipton. Plans and specifications may be seen, and schedule of quantities obtained, on application to Mr. John Mallinson, Engineer and Surveyor to the Council, Town Hall, Skipton, on payment of the sum of 2*l*.

MAY 21.—**Egg Buckland.**—ROAD.—For making a new road, Leigham Manor, Egg Buckland, according to the plans and specifications prepared by Mr. Hansford Worth, C.E. Plans, etc., to be seen at office of Messrs. Prance & Prance, solicitors, 7, Athenæum-terrace, Plymouth.

MAY 23.—**Kensington.**—ROAD WORKS.—Kensington Royal B.C. invite tenders for making-up the street known as St. Alban's-road North, situate in that borough. Plan and specification may be inspected, and further particulars obtained, at the Borough Engineer's Department, Town Hall, Kensington.

✱ MAY 23.—**London.**—MAKING-UP STREET.—The Council of the Royal Borough of Kensington invite tenders for making-up the street known as St. Albans-road North, situate in that borough. For further particulars see advertisement in this issue.

MAY 24.—**Levenshulme.**—ROAD WORKS.—The Levenshulme U.D.C. invite tenders for sewering, draining, sett paving, tar macadaming, kerbing, flagging, channelling, and completing streets and passages. Specifications and bills of quantities and further particulars may be obtained from the Council's Surveyor, Mr. James Jepson, Guardian-chambers, 8A, Tiviot-dale, Stockport, on payment of 2*l*. 2s.

✱ MAY 27.—**Balham.**—MAKING-UP, ETC.—The Metropolitan B.C. of Wandsworth invites tenders for making-up and paving of part of Calbourne-road, Balham. For further particulars see advertisement in this issue.

✱ MAY 27.—**Putney.**—MAKING-UP, ETC.—The Metropolitan B.C. of Wandsworth invites tenders for the making-up and paving of part of Larpent-street (renamed Larpent-avenue), Putney. For further particulars see advertisement in this issue.

NO DATE.—**Belfast.**—PAVING.—For paving of entry, Nos. 5 to 43, Hillview-street, according to specification. Mr. Thomas Thompson, rent agent, 163, Grosvenor-road.

NO DATE.—**Manchester.**—EXCAVATING, ETC.—Excavating and building up to ground level basement and sub-basement on plot of land bounded by Dale-street, China-lane, back China-lane, and Hilton-street. Names to Mr. R. Argile, 9, Booth-street, Piccadilly, Manchester.

STONE, MATERIALS, AND STORES.

MAY 6.—**Romford.**—GRANITE SPALLS.—Romford Guardians invite tenders for the supply of 100 tons of blue Guernsey granite spalls, to be delivered at the Workhouse, Romford.

MAY 7.—**Salford.**—DISINFECTANTS.—Salford Lighting and Cleansing Committee invite tenders for the supply and delivery of carbolic powder and of chloride of lime. Forms of tender and all other information may be had on application to the Superintendent, Cleansing Department, Wilburn-street, Salford.

MAY 8.—**Bradford.**—SUPPLIES.—The Bradford Corporation invite tenders for the supply and delivery of the following articles, namely:—Pitch and oil required for street paving purposes; cast-iron gullies, ventilators, and storm grates; glazed earthenware pipes, blocks, and junctions; timber for sewerage and other works. Forms of tender and all necessary information may be obtained on application at the office of Mr. J. H. Cox, City Surveyor, at the Town Hall.

MAY 8.—**Edmonton.**—DEAL, ETC.—The Guardians of the Edmonton Union invite tenders for the supply of 100 fathoms of best yellow Baltic deal and batten ends, to be delivered at the Edmonton Workhouse. Forms from Mr. F. Shelton, Clerk, Lower Tottenham.

MAY 8.—**Hawarden.**—ROAD STONES, ETC.—Hawarden R.D.C. invite tenders for the supply of road stones for the maintenance of roads within the district. Tenders are also invited for the carting of stones. Forms of tender and all particulars may be had on application to the District Surveyor, Mr. Wm. Newton, Drury, Buckley, Chester.

MAY 8.—**Manchester.**—TIMBER GOODS.—The Cleansing Committee of the Manchester Corporation invite tenders for the undermentioned goods:—Fifty-five standard spruce deals, one standard red deal, twelve balks American oak, etc. Specifications may be obtained from Mr. R. Williamson, Superintendent of the Cleansing Department, Town Hall, Manchester.

MAY 8.—**Southwark.**—WOOD BLOCKS.—Southwark B.C. invite tenders for the supply of 425,000 Jarrah wood blocks, 3 in. by 9 in. by 4½ in., or 614,000 Jarrah wood blocks, 3 in. by 5 in. by 4½ in. Further particulars and printed specifications may be obtained at the office of the Borough Engineer, Town Hall, Walworth-road, S.E., any day between the hours of 10 a.m. and 4 p.m.

MAY 10.—**Leeds.**—FLAGS.—Leeds Parks Committee invite tenders for the supply of flags for the Leeds Hunslet, and Holbeck Cemeteries until March 31, 1908. Particulars may be obtained from Mr. W. T. Lancashire, City Engineer, Municipal Buildings, Leeds.

MAY 10.—**Rhondda.**—STORES.—Rhondda U.D.C. invite tenders for stores in eight separate contracts. Specifications and forms of tender may be obtained at the office of the Engineer and Surveyor, Council Offices, Pentre, Rhondda.

MAY 10.—**Wakefield.**—MATERIALS.—Wakefield R.D.C. invite tenders for the year ending March 31, 1908, for the supply of road materials, etc. Forms of tender and full particulars may be obtained from Mr. Frank Massie, M.Inst.C.E., at his offices at Tetley House, 47, Kirkgate, Wakefield.

MAY 20.—**Middlewich.**—MATERIALS, ETC.—Middlewich U.D.C. invite tenders for materials, labour, etc. Particulars, printed forms of tenders, and further information can be obtained from Mr. F. W. Stocks, F.S.I., Surveyor to the Council, Town Hall.

MAY 20.—**Stevenage.**—GRANITE.—The Stevenage U.D.C. invite tenders for the supply of 1,000 tons of 1¾ in. to 2 in., 1½ in. to 1¾ in., and 1 in. to 1¼ in. broken Guernsey, Leicester, or other granite. The usual form of contract with bond is deposited for inspection at the Council's Offices.

Public Appointment.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*CARPENTER FOR TRAINING SCHOOLS	Poplar Guardians	2l. per week	May 8

Auction Sales.

Nature and Place of Sale.	By whom Offered.	Date of Sale.
*FREEHOLD BUILDING LAND, WALTHAMSTOW—At the Mart	D. Burnett & Co.	May 6
*DEALS, BATTENS, ETC.—Great Hall, Winchester House, Old Broad-street, E.C.	Churchill & Sims	May 8
*BUILDERS' AND CONTRACTORS' STOCK—At Mansfield-yd., Montacute-rd., Tunbridge Wells	E. J. Carter	May 8 to 10
*FREEHOLD DETACHED RESIDENCE, ACTON—At the Mart	Chesterton & Sons	May 9
*BUSINESS PREMISES, FINSBURY—At the Mart	Ferris & Puckridge	May 10
*FREEHOLD SITES, AMERSHAM-ON-THE-HILL—Station Hotel, Amersham	F. L. Sanders	May 14
*VALUABLE BUILDING SITE, ALDERSGATE-STREET, E.C.—At the Mart	Reynolds & Eason	do.
*1,000 l. ORDINARY SHARES, DIV. 10 PER CENT., GEO. M. CALLENDER—At the Mart	Edwin Fox & Bousfield	May 15
*SAW-MILL PLANT AND MACHINERY, LEWISHAM, S.E.—On the Premises	Fuller, Horsey, Sons, & Cassell	May 16
*BUILDING SITE, CITY OF LONDON—At the Mart	Garrett, White, & Poland	May 24
*CORNER BUILDING SITE, CITY OF LONDON—At the Mart	Jones, Lang, & Co.	May 27
*FREEHOLD PROPERTY, SUNBURY-ON-THAMES—At the Mart	Chancellor & Sons	May 28
*FREEHOLD ESTATE, FINCHLEY—At the Mart	Debenham, Tewson, Richardson, & Co.	do.
*BUILDING ESTATE, CRICKLEWOOD—At the Mart	Debenham, Tewson, Richardson, & Co.	June 11
*FREEHOLD BUILDING ESTATE, CLAPHAM COMMON—At the Mart	Thurgood & Martin	June 20

PATENTS.—*Continued from page 547.*

meeting edge of one door and at the other end near to the edge of the other door, and guide rolls to guide said cords, wires, or chains.

12,536 of 1906.—J. H. WILD: *Pipe or Tube Couplings.*

This relates to a pipe or tube coupling, and consists in the combination of a hollow externally coned plug, projected into the end of the pipe to be connected and formed with a screw-threaded parallel portion, an internally coned piece surrounding the joint between a pipe and plug and formed with an internal screw-threaded parallel portion and an internally and externally threaded nut engaging the external thread of the plug and the internal thread of the surrounding piece for extending the pipe into the largest end of the external cone.

13,963 of 1906.—W. L. MCCABE: *Conveyors.*

This relates to transportable conveyors in which the driving drum which supports the conveyor belt is provided with an annular groove for receiving the driving belt, and so arranged that the top of the driving belt acts as a bearing surface for the conveyor belt, and consists in the provision of guiding means for preventing the belt from leaving the groove.

14,647 of 1906.—W. J. STEWART: *Excavating for Concrete or other Piles and Well Sinking.*

This relates to excavating for concrete or other piles, well sinking and similar work, and consists of a strong outer tube to be driven into the soil by percussive or other force, in combination with a lighter inner tube to receive and withdraw from the outer tube the excavated material.

21,979 of 1906.—H. SACK: *Manufacture of I-girders and the like.*

This relates to a rolling train for rolling I-girders in which the I-sections are first shaped with curved flanges which are afterwards bent straight, and is characterised in that the vertical rollers provided with rims or flanges form an angle of 90 degrees in the corners, and the horizontal rollers form an angle of 90 degrees in the other corners, so that when the rough sections thus rolled are bent straight in a set of finishing rolls, the edges of the girder are already rectangular and thus girders are obtained, the flanges of which are almost or entirely without any taper, in which arrangement it is not necessary to exert pressure on the outer edge surface of the rough section, so that the finishing rolls can work with open grooves.

22,044 of 1906.—E. KEIMER: *Inclined way for Raising and Lowering Loads.*

This relates to an arrangement for conveying loads between levels of different elevation, the characteristics of which are that two carriages or trucks are arranged on the rails of two supporting beams respectively, the beams forming the connexion or bridge between the two levels, and the carriages being each connected to an endless chain or rope, arranged in each of the beams and conducted over two toothed wheels or pulleys in such a manner that the carriages can be brought in and out of engagement with the chains, and that the supporting beams are only connected with each other by means of a square shaft with cranked handle passing through square holes provided in the toothed wheels and pulleys of the two chains so as to effect a loose connexion between the two beams and enable the distance between them to be easily altered, the shaft serving at the same time to set the device in motion by means of the sprocket wheel thereon.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

April 9.—By B. HASLAM & SON (at Reading).

Reading.—Caversham-rd., etc., f.g. rents 160l., reversion in 80 and 90 yrs.	£3,648

April 22.—By GILBERT & HOW.

St. Pancras.—Seymour-st., etc., l.g. rents 230l., u.t. 12 yrs., g.r. 120l.	600

By G. A. MCDOWALL.

Bethnal Green.—37, 39, and 41, Wennington-rd., u.t. 50 yrs., g.r. 9l. 9s., w.r 63l. 12s.	595
Bow.—97, Antill-rd., u.t. 42½ yrs., g.r. 2s. 6d., e.r. 30l.	300

By MAY & PHILPOT.

Streatham.—2 and 4, Ferrers-rd., u.t. 76 yrs., g.r. 10l., w.r. 66l. 6s.	450

By PERCIVAL HODSON.

Somers Town.—64 and 66, Aldenham-st, 17 and 18, Sidney-st., u.t. 17½ yrs., g.r. 22l., w.r. 193l. 14s.	400
68, 70, and 72, Aldenham-st., u.t. 22 yrs., g.r. 23l., w.r. 156l.	350
74, Aldenham-st., u.t, 23 yrs., g.r. 7l. 10s., w.r. 58l. 10s.	130
76, Aldenham-st., u.t. 16 yrs., g.r. 6l., w.r. 52l.	130
46, Seymour-st. (s.), u.t. 11 yrs., g.r. 8l., y.r. 52l.	170
58, Seymour-st., and 11, Little Drummond-st., u.t. 11½ yrs., g.r. 13l. 5s., w.r. 93l. 3s.	185
114, 116, 118, and 126, Seymour-st., u.t. 25½ yrs., g.r. 66l., w.r. 212l. 12s.	555
144 to 160 (even), Seymour-st., u.t. 25½ yrs., g.r. 132l., w.r. 467l. 16s.	765
164, 168, and 170, Seymour-st., u.t. 25½ yrs., g.r. 49l. 10s., w.r. 161l. 8s.	380
Little Clarendon-st., l.g.r. 75l. 12s., u.t. 18 yrs., g.r. 45l.	230
Caledonian-road.—8 and 9, Bryan-pl., u.t. 36½ yrs., g.r. 12l. 10s., w.r. 66l. 10s.	390
Marylebone.—7 and 10, Circus-st., f., w.r. 127l. 8s.	1,420
Stoke Newington.—38 and 42, Mildmay-st., f., y.r. 57l.	840
Whetstone.—High-rd., "Spring Cottage," f., w.r. 23l. 8s.	390
Finchley.—East End-rd, "Park Farm View," f., y.r. 25l.	320

April 23.—By H. J. BROMLEY.

West Norwood.—69 and 71, Dunbar-st., f., w.r. 33l. 8s.	190

By DEBENHAM, TEWSON, & CO.

Holloway.—54, St. John's-rd., u.t. 66½ yrs., g.r. 5l., w.r. 39l.	275

By GREEN & LINES.

Chelsea.—17, Sidney-st., u.t. 17 yrs., g.r. 5l., e.r. 60l.	370

By SALTER, REX & CO.

Kentish Town.—3, Caversham-rd., u.t. 41 yrs., g.r. 12l., y.r. 50l.	380

April 23 and 24.—By SMALLPEICE, ALLEN & CO., (at Woking).

Woking.—Church-st., 1 and 2, Netley-villas; 1 and 2, Alwyne-villas; also eight named villas, f.	3,165
Bridge Path, 1 to 10 River-view, f.	1,855
Boundary-rd., 1 to 5, Albion-villas, f.	730
Goldsworth-rd., 1 to 4, Nursery-ter., f.	1,885
Bath-rd., "Ferndale," f.	560
Bath-rd., "Warmley Lodge," f.	820
Goldsworth-rd., 1, 2 and 3, Gordon-villa, f.	1,130
Eve-rd., 1, 2 and 3, Cosey Cottages f.	550
Eve-rd., 1 and 2, Sussex-villas, and 2 and 3, Railway-view, f.	810
Maybury-rd., 1 and 2 Crastock villas, f.	880
Portugal-rd., "Azalea," f.	405
Grove-rd., "Juniper Lodge," f.	570
York-rd., "Clifton" and "Chelsfield," f.	1,240
York-rd., "Sunnybrae" and "Thursford," f.	1,050
Walton-rd., "Vine Cottage, 1 and 2, Pine Cottages, 1 and 2, Ivy Cottages, 1, Beaulieu Cottages and Whall's Stores, f.	1,910
Board School-rd., 1 to 4, Mayville-ter., f.	655
6, 7 and 8, Chertsey-rd., f.	1,790

April 24.—By DYER, SON, & HILTON.

Lee.—18a, Belmont-pk., u.t. 45½ yrs., g.r. 2l., p. 135, 137, 143, and 145, Burnt Ash-hill, u.t. 68 yrs., g.r. 20l., y.r. 250l.	1,675
147, Burnt Ash-hill, and 7, Winn-rd., u.t. 68 yrs., g.r. 18l., y.r. 125l.	735
8 to 16 (even), Corona-rd., u.t. 68 yrs., g.r. 22l., y.r. 260l.	£1,805

By ED. J. GAIRDNER.

Bloomsbury.—26, Endsleigh-gdns., f., y.r. 70l.	1,190

By ROBERT TIDEY & SON.

Islington.—143, Southgate-rd., u.t. 20 yrs., g.r. 6l., y.r. 45l.	250
De Beauvoir Town.—94, Downham-rd., u.t. 12¼ yrs., g.r. 4l., p.	230
25, Southgate-rd, u.t. 12 yrs., g.r. 2l., y.r. 32l.	150

By FRED VARLEY & SON.

Highbury.—109, Riversdale-rd., f., y.r. 30l.	400

By DOUGLAS, YOUNG, & CO.

Stockwell.—57, Stockwell-rd. (The Girls' Training Home), f., area 13,950 ft.	1,000
Wandsworth.—28, 30, and 32, Replingham-rd., u.t. 87 yrs., g.r. 15l., w.r. 115l. 4s.	720
Barnes.—"Meredyth," Church-rd., u.t. 87 yrs., g.r. 11l., y.r. 50l.	450

April 25.—By WALTER H. CAMERON.

Harlesden.—25, Leghorn-rd., u.t. 93 yrs., g.r. 6l., w.r. 50l. 14s.	350

By CRASKE & SONS.

Peckham.—72, Bellenden-rd., u.t. 69 yrs., g.r. 4l., e.r. 35l.	350

By JOHN D. DEAN & CO.

Clapham.—78 and 78a, Northcote-rd, and 48 and 50, Bennerley-rd., f., e.r. 110l.	1,300
Balham.—26, Endlesham-rd., u.t. 61 yrs., g.r. 8l., e.r. 38l.	330

By JAMES E. FISHER.

Tooting.—71 to 83 (odd), High-st., f., w.r. 152l. 2s.	1,750
129 to 130 (odd), Blackshaw-rd., f., w.r. 140l. 8s.	1,390
102 and 104, Eswyn-rd., f., y.r. 65l.	700

By FAREBROTHER, ELLIS, & CO.

Fulham.—North End-rd., etc., f.g. rents 36l. 5s. reversion in 24 yrs.	615
Strand.—36, St. Martin's-la., and land in rear (area 1,250 ft.), y.r. 170l.	3,350

By FLOOD & SONS.

Notting Hill.—56 and 58, Ladbroke-gr., f., y.r. 300l.	4,330

By JAMES S. HOLLAND.

Old Ford.—79, Old Ford-rd., u.t. 46½ yrs., g.r. 5l., y.r. 30l.	280

By NEWBON, SHEPHARD, & EDWARDS.

Islington.—121, Englefield-rd., u.t. 34 yrs., g.r. 6l. 5s., y.r. 48l.	295
Green Lanes.—49, Springdale-rd., u.t. 64 yrs., g.r. 5l. 5s., y.r. 38l.	290
Notting Hill.—39, Blenheim-cres., f., q.r. 45l.	650

By ROBINS, GORE, & MERCER.

Stockwell.—37, St. Martin's-rd., u.t. 55 yrs., g.r. 4l. 4s., y.r. 32l.	270
32, 34, and 42, Stansfield-rd., u.t. 63¼ yrs., g.r. 19l. 10s., y.r. 106l.	915
Brompton.—2, Rutland-st., u.t. 19 yrs., g.r. 6l., y.r. 39l.	180
Homerton.—30, Church-rd., f. and c., y.r. 38l.	400

By STIMSON & SONS.

Brixton.—9 to 21 (odd), Somers-rd., f., w.r. 190l. 10s.	2,100
1 to 17 (odd), 2 to 22 (even), Merredene-st., f., w.r. 555l. 2s.	6,320
Peckham.—69, Elm-gr., u.t. 17¼ yrs., g.r. 3l., w.r. 39l.	150
83, Commercial-rd., u.t. 36¼ yrs., g.r. 5l. 5s., w.r. 36l. 8s.	135
Bermondsey.—15, The Grange (s.), u.t. 18¼ yrs., g.r. 5l. 5s., y.r. 32l.	130
Kingsland.—19, Hows-st., f., w.r. 37l. 14s.	275
Fulham.—15 and 16, Eustace-rd., u.t. 65 yrs., g.r. 10l., w.r. 124l. 16s.	560
Lambeth.—31 and 33, Barbel-st. (S.), u.t. 29½ yrs., g.r. 1l., e.r. 80l.	320
Forest Gate.—38, Ernest-rd., u.t. 69 yrs., g.r. 3l. 3s., p.	140
Kennington.—34, 35, and 36, Richmond-st., u.t. 10½ yrs., g.r. 12l., w.r. 83l. 4s.	165
37, St. Agnes-pl., f., y.r. 45l.	600
Peckham.—29, 31, 33, and 35, Harders-rd., u.t. 55½ yrs., g.r. 24l.	975

By WHEELER BROS.

Chelsea.—21, Glebe-pl., u.t. 60½ yrs., g.r. 2l., p.	720
Fulham.—35 and 37, Stanley-rd., u.t. 45½ yrs., g.r. 10l., w.r. 65l.	330
Battersea.—8, 12, and 14, Blondel-st., u.t. 68 yrs., g.r. 12l., w.r. 88l. 8s.	470

April 26.—By DONALDSON & SONS.

Forest Gate.—101 and 103, Station-rd. (s.), u.t. 71¼ yrs., g.r. 8l., y.r. 80l.	£700
Stepney.—21, White Horse-st. (s.). f., w.r. 31l. 4s.	230
Dalston.—5, Clifton-gr., u.t. 44¼ yrs., g.r. 5l., y.r. 34l.	305
61, Colvestone-cres., u.t. 58¼ yrs., g.r. 6l., y.r. 38l.	325
21, Marlborough-rd. (s.), u.t. 37¼ yrs., g.r. nil, y.r. 31l.	260
22, Marlborough-rd. (s.), u.t. 37¼ yrs., g.r. 10l., y.r. 31l.	150
20 Albion-rd., u.t. 32 yrs., g.r. 4l., e.r. 36l. ..	280
Bowes Park.—40, 42, and 44, Queen's-rd., u.t. 74 yrs., g.r. 18l., w.r. 93l. 12s.	360

By KNIGHT, FRANK & RUTLEY.

Camberwell.—34, Grove-la., f., y.r. 36l.	420

By SPARROW & SON.

Finchley.—37, High-st. (s.), u.t. 45 yrs., g.r. 5l., y.r. 70l.	1,430
39, High-st. (s.), u.t. 45 yrs., g.r. 5l., y.r. 65l.	1,065
Freehold land in rear of above	275
59, High-st. (s.), u.t. 58 yrs., g.r. 1l., y.r. 60l.	1,065
Whetstone.—"York Vila," "Ivy Cottage," and "Seymour Cottage," f.	1,200

By TYSER, GREENWOOD & Co.

Chiswick.—33 and 35, Stonehill-rd., u.t. 62 yrs., g.r. 10l., w.r. 83l. 4s.	525

By W. B. HALLETT.

Holloway.—442, Camden-rd, u.t. 35 yrs., g.r. 8l., p.	455
Heston.—"Dockwell Field," 14 a., 1 r., 30 p., f.	975
Poplar.—213, 215, and 217, High-st. (s.), f., y.r. 61l.	581
Hornsey Rise.—5 and 11, Upper Hornsey Rise, f., y.r. 120l.	1,350
16 to 26 (even), and 30, Ashley-rd., f.	3,630

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold, p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. beerhouse; p.h. for public-house; o. for office; s. for shops; ct. for court.

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PREPAYMENT IS ABSOLUTELY NECESSARY.

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Advertisements or the current week's issue are received up to HALF-PAST ONE p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST TWELVE p.m. on that day. Those intended for the Outside Wrapper should be in by TWELVE NOON on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, etc., left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

ADVERTISERS in "THE BUILDER" may have *Replies addressed to the Office, 4, Catherine Street, Covent Garden, W.C., free of charge.* Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

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AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES { NINEPENCE EACH. By post (carefully packed) 1s.

MEETINGS.

FRIDAY, MAY 3.

Architectural Association.—Members' dinner. Georgian Hall, Gaiety Restaurant. 7 p.m.

SATURDAY, MAY 4.

Edinburgh Architectural Association.—Visit to Messrs. W. Turner & Sons' stone-dressing works.

MONDAY, MAY 6.

Royal Institute of British Architects.—Annual general meeting. 8 p.m.

Society of Engineers.—Mr. E. Romney Matthews on "Waterwork Constructions in America." 7.30 p.m.

Royal Sanitary Institute (Lectures for Sanitary Officers).—Lecture by Dr. E. P. Manby. 7 p.m.

WEDNESDAY, MAY 8.

Royal Sanitary Institute (Lectures for Sanitary Officers).—Dr. E. P. Manby on "The Hygiene of Byres, Lairs, Cowsheds, and Slaughterhouses, etc." 7 p.m.

Junior Institution of Engineers (Westminster Palace Hotel).—Paper on "The Theory of the Steam Turbine," by Mr. H. M. Martin, Wh.Sc., and Mr. B. H. Parsons, Assoc.M.Inst.C.E. 8 p.m.

Society of Arts.—Mr. Paul Schlicht on "The Production of Coke and its Application in Domestic Fires." 8 p.m.

THURSDAY, MAY 9.

Royal Institution.—Mr. H. F. Newall, M.A., F.R.S., on "Spectroscopic Phenomena in Stars."—I. Chemistry. 3 p.m.

Royal Sanitary Institute (Demonstrations for Sanitary Officers).—Inspection at the Metropolitan Cattle Market, York-road, N. 2 p.m.

Institution of Electrical Engineers.—Meeting at the Society of Arts, John-street, Adelphi, W.C. 8 p.m.

FRIDAY, MAY 10.

Royal Institution.—Signor Come Giacomo Boni on "Recent Excavations on the Forum Romanum and the Forum Ulpium." 9 p.m.

Royal Sanitary Institute (Lectures for Sanitary Officers).—Lecture by Dr. E. P. Manby. 7 p.m.

SATURDAY, MAY 11.

Edinburgh Architectural Association.—Visit to the Peel, Clovenfords.

Northern Architectural Association.—Visit to the Convent of the Sacred Heart (Fenham Hall). Fenham Hall is of Eighteenth Century work, and additions are being made from the designs of Mr. Leonard Stokes, Architect.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.	
Hard Stocks	1 8 0	per 1000 alongside, in river.
Rough Stocks and Grizzles	1 6 0	" " "
Picked Stocks for Facings	2 10 0	" delivered.
Flettons	1 8 0	" at railway depôt.
Red Wire Cuts	1 14 0	" " "
Best Fareham Red	3 12 0	" " "
Best Red Pressed Ruabon Facing	5 0 0	" " "
Best Blue Pressed Staffordshire	3 15 0	" " "
Do. Bullnose	4 0 0	" " "
Best Stourbridge Fire Bricks	3 14 0	" " "
GLAZED BRICKS.		
Best White and Ivory Glazed Stretchers	12 0 0	" " "
Headers	11 0 0	" " "
Quoins, Bullnose, and Flats	16 0 0	" " "
Double Stretchers	19 0 0	" " "
Double Headers	16 0 0	" " "
One Side and two Ends	19 0 0	" " "
Two Sides and one End	20 0 0	" " "
Splays, Chamferred, Squints	20 0 0	" " "
Best Dipped Salt Glazed Stretchers, and Header	12 0 0	" " "
Quoins, Bullnose, and Flats	14 0 0	" " "
Double Stretchers	15 0 0	" " "
Double Headers	14 0 0	" " "
One Side and two Ends	15 0 0	" " "
Two Sides and one End	15 0 0	" " "
Splays, Chamferred, Squints	14 0 0	" " "
Second Quality White and Dipped Salt Glazed	2 0 0	" less than best.

	s. d.	
Thames and Pit Sand	7 0	per yard, delivered.
Thames Ballast	5 6	" "
Best Portland Cement	28 0	per ton, "
Best Ground Blue Lias Lime	19 0	" "

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime	11s. 6d. per yard, delivered.
Stourbridge Fireclay in sacks	27s. 0d. per ton at rly. dpt.

STONE.

	s. d.	
BATH STONE—delivered on road waggons, Paddington Depôt	1 6½	per ft. cube.
Do. do. delivered on road waggons, Nine Elms Depôt	1 8½	" "
PORTLAND STONE (20 ft. average)—		
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 1	" "
White Basebed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 2½	" "
Ancaster in blocks	1 10	per ft. cube, deld. rly. depôt.
Beer "	1 6	" "
Greenshill "	1 10	" "
Darley Dale in blocks	2 4	" "
Red Corsehill "	2 2	" "
Closeburn Red Freestone	2 0	" "
Red Mansfield "	2 4	" "
YORK STONE—*Robin Hood Quality.*		
Scappled random blocks	2 10	" "
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3	per ft. super., "
6 in. rubbed two sides ditto, ditto	2 6	" "
3 in. sawn two sides slabs (random sizes)	0 11½	" "
2 in. to 2½ in. sawn one side slabs (random sizes)	0 7½	" "
1½ in. to 2 in. ditto, ditto	0 6	" "
HARD YORK—		
Scappled random blocks	3 0	per ft. cube, "
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 8	per ft. super. "
6 in. rubbed two sides ditto	3 0	" "

STONE (*continued*).

HARD YORK (*continued*)—		
3 in. sawn two sides slabs (random sizes)	s. d. 1 2	per ft. super. deld. rly. depôt
2 in. self-faced random flags	0 5	" "

SLATES.

In. In.	£ s. d.	
20 × 10 best blue Bangor	13 2 6	per 1000 of 1200 at r. d.
20 × 12 " "	13 17 6	" "
20 × 10 first quality "	13 0 0	" "
20 × 12 " "	13 15 0	" "
16 × 8 " "	7 5 0	" "
20 × 10 best blue Portmadoc	12 12 6	" "
16 × 8 " "	6 12 6	" "
20 × 10 best Eureka unfading green	15 17 6	" "
20 × 12 " "	18 7 6	" "
18 × 10 " "	13 5 0	" "
16 × 8 " "	10 5 0	" "
20 × 10 permanent green	11 12 6	" "
18 × 10 " "	9 12 6	" "
16 × 8 " "	6 12 6	" "

TILES.

	s. d.	
Best plain red roofing tiles	42 0	per 1000 at rly. depôt.
Hip and Valley tiles	3 7	per doz. "
Best Broseley tiles	50 0	per 1000 "
Do. Ornamental tiles	52 6	" "
Hip and Valley tiles	4 0	per doz. "
Best Ruabon red, brown, or brindled do. (Edwards)	57 6	" "
Do. Ornamental do.	60 0	" "
Hip tiles	4 0	per doz. "
Valley tiles	3 0	" "
Best Red or Mottled Staffordshire do. (Peakes)	51 9	per 1000 "
Do. Ornamental do.	54 6	" "
Hip tiles	4 1	per doz. "
Valley tiles	3 8	" "
Best "Rosemary" brand plain tiles	48 0	per 1000 "
Best Ornamental tiles	50 0	" "
Hip tiles	4 0	per doz. "
Valley tiles	3 8	" "
Best "Hartshill" brand plain tiles, sand-faced	50 0	per 1000 "
Do. pressed	47 6	" "
Do. Ornamental do.	50 0	" "
Hip tiles	4 0	per doz. "
Valley tiles	3 6	" "

WOOD.

BUILDING WOOD.	£ s. d.	At per standard. £ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	13 10 0	... 15 0 0
Deals: best 3 by 9	13 0 0	... 14 0 0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11 0 0	... 12 0 0
Battens: best 2½ by 6 and 3 by 6	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less than best.
Battens: seconds	0 10 0	" "
2 in. by 4 in. and 2 in. by 6 in.	9 0 0	... 10 0 0
2 in. by 4½ in. and 2 in. by 5 in.	8 10 0	... 9 10 0
Foreign Sawn Boards—		
1 in. and 1¼ in. by 7 in.	0 10 0	more than battens.
¾ in.	1 0 0	"

	At per load of 50 ft.	
Fir timber: best middling Danzig or Memel (average specification)	4 10 0	... 5 0 0
Seconds	4 0 0	... 4 10 0
Small timber (8 in. to 10 in.)	3 12 6	... 3 15 0
Small timber (6 in. to 8 in.)	3 0 0	... 3 10 0
Swedish balks	2 10 0	... 3 0 0
Pitch-pine timber (30 ft. average)	4 0 0	... 4 15 0

JOINERS' WOOD.	At per standard.	
White Sea: first yellow deals, 3 in. by 11 in.	24 0 0	... 25 0 0
3 in. by 9 in.	22 0 0	... 23 0 0
Battens, 2½ in. and 3 in. by 7 in.	16 10 0	... 18 0 0
Second yellow deals, 3 in. by 1 in.	18 10 0	... 20 0 0
" " 3 in. by 9 in.	17 10 0	... 19 0 0
Battens, 2½ in. and 3 in. by 7 in.	13 10 0	... 14 10 0
Third yellow deals, 3 in. by 11 in. and 9 in.	13 10 0	... 15 0 0
Battens, 2½ in. and 3 in. by 7 in.	11 0 0	... 12 0 0
Petersburg first yellow deals, 3 in. by 11 in.	21 0 0	... 22 10 0
Do. 3 in. by 9 in.	18 0 0	... 19 10 0
Battens	13 10 0	... 15 0 0
Second yellow deals, 3in. by 11in.	16 0 0	... 17 0 0
Do. 3 in. by 9 in.	14 10 0	... 16 0 0
Battens	11 0 0	... 12 10 0
Third yellow deals, 3 in. by 11 in.	13 0 0	... 14 0 0
Do. 3 in. by 9 in.	12 10 0	... 14 0 0
Battens	10 0 0	... 11 0 0
White Sea and Petersburg—		
First white deals, 3 in. by 11 in.	14 10 0	... 15 10 0
" " 3 in. by 9 in.	13 10 0	... 14 10 0
Battens	11 0 0	... 12 0 0
Second white deals, 3 in. by 11 in.	13 10 0	... 14 10 0
" " 3 in. by 9 in.	12 10 0	... 13 10 0
" " battens	10 0 0	... 11 0 0
Pitch-pine: deals	18 0 0	... 21 0 0
Under 2 in. thick extra	0 10 0	... 1 0 0
Yellow Pine—First, regular sizes	44 0 0	upwards.
Oddments	32 0 0	"
Seconds, regular sizes	33 0 0	"
Yellow Pine oddments	28 0 0	"
Kauri Pine—Planks, per ft. cube	0 3 6	... 0 5 0
Danzig and Stettin Oak Logs—		
Large, per ft. cube	0 3 0	... 0 3 6
Small " "	0 2 6	... 0 2 9
Wainscot Oak Logs, per ft. cube	0 5 6	... 0 6 0
Dry Wainscot Oak, per ft. sup. as inch	0 0 8½	... 0 0 9½
¾ in. do. do	0 0 7	... —
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch	0 0 9	... 0 1 0
Selected, Figury, per ft. super. as inch	0 1 6	... 0 2 6
Dry Walnut, American, per ft. super. as inch	0 0 10	... 0 1 0
Teak, per load	17 0 0	... 22 0 0
American Whitewood Planks, per ft. cube	0 4 0	... 0 5 0

WOOD (*continued*).

JOINERS' WOOD—(*continued*).

Prepared Flooring, etc.—	Per square. £ s. d.		£ s. d.
1 in. by 7 in. yellow, planed and shot	0 13 6	...	0 17 0
1 in. by 7 in. yellow, planed and matched	0 14 0	...	0 18 0
1¼ in. by 7 in. yellow, planed and matched	0 16 0	...	1 0 0
1 in. by 7 in. white, planed and shot	0 12 0	...	0 14 6
1 in. by 7 in. white, planed and matched	0 12 6	...	0 15 0
1¼ in. by 7 in. white, planed and matched	0 15 0	...	0 16 6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0 11 0	...	0 13 6
1 in. by 7 in. „ „	0 14 0	...	0 18 0
¾ in. by 7 in. white „	0 10 0	...	0 11 6
1 in. by 7 in. „ „ „	0 12 9	...	0 15 0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £ s. d.		£ s. d.
Rolled Steel Joists, ordinary sections	7 7 6	...	7 15 0
Compound Girders, ordinary sections	9 10 0	...	10 10 0
Steel Compound Stanchions	12 5 0	...	13 5 0
Angles, Tees, and Channels, ordinary sections	9 5 0	...	10 5 0
Flitch Plates	9 5 0	...	10 5 0
Cast Iron Columns and Stanchions including ordinary patterns	8 0 0	...	9 0 0

METALS.

	Per ton, in London. £ s. d.		£ s. d.
IRON—			
Common Bars	8 10 0	...	9 0 0
Staffordshire Crown Bars, good merchant quality	9 5 0	...	9 15 0
Staffordshire "Marked Bars"	11 0 0	...	—
Mild Steel Bars	9 10 0	...	9 15 0
Hoop Iron, basis price	9 15 0	...	10 0 0
„ „ Galvanised	17 10 0	...	—
(*And upwards, according to size and gauge.)			
Sheet Iron Black—			
Ordinary sizes to 20 g.	10 0 0	...	—
„ „ 24 g.	11 0 0	...	—
„ „ 26 g.	12 10 0	...	—
Sheet Iron, Galvanised, flat, ordinary quality—			
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	16 0 0	...	—
Ordinary sizes to 22 g. and 24 g.	16 10 0	...	—
„ „ 26 g.	17 0 0	...	—
Sheet Iron, Galvanised, flat, best quality—			
Ordinary sizes to 20 g.	19 0 0	...	—
„ „ 22 g. and 24 g.	19 10 0	...	—
„ „ 26 g.	21 0 0	...	—
Galvanised Corrugated Sheets—			
Ordinary sizes 6 ft. to 8 ft. 20 g.	16 0 0	...	—
„ „ 22 g. and 24 g.	16 5 0	...	—
„ „ 26 g.	17 10 0	...	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	13 0 0	...	—
Best Soft Steel Sheets, 22 g. & 24 g.	14 0 0	...	—
„ „ „ 26 g.	16 0 0	...	—
Cut Nails, 3 in. to 6 in.	10 15 0	...	11 5 0
(Under 3 in., usual trade extras.)			

LEAD, &c.

	Per ton, in London. £ s. d.		£ s. d.
LEAD—Sheet, English, 3lb. and up.	23 2 6	...	—
Pipe in coils	23 12 6	...	—
Soil pipe	25 12 6	...	—
Compo pipe	26 12 6	...	—
ZINC—Sheet—			
Vieille Montagne ton	33 15 0	...	—
Silesian	33 10 0	...	—
COPPER—			
Strong Sheet per lb.	0 1 4	...	—
Thin „	0 1 5	...	—
Copper nails „	0 1 3	...	—
BRASS—			
Strong Sheet „	0 1 2	...	—
Thin „	0 1 3	...	—
TIN—English Ingots „	0 1 11	...	—
SOLDER—Plumbers' „	0 0 9	...	—
Tinmen's „	0 0 11	...	—
Blowpipe „	0 1 1	...	—

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

15 oz. thirds	2½d. per ft. delivered.
„ fourths	1⅞d. „ „
21 oz. thirds	3⅛d. „ „
„ fourths	2⅜d. „ „
26 oz. thirds	4d. „ „
„ fourths	3⅛d. „ „
32 oz. thirds	5d. „ „
„ fourths	4⅛d. „ „
Fluted Sheet, 15 oz.	3⅛d. „ „
„ 21 oz.	4⅛d. „ „

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

¼ Hartley's	2½d. per ft. delivered.
¼ „	2⅛d. „ „
¼ „	3d. „ „
Figured and Oxford Rolled "Oceanic" Glass, white	4d.
Do. „ tinted	5½d. „ „

OILS, &c.

		£ s. d.
Raw Linseed Oil in pipes	per gallon	0 2 0
„ „ „ in barrels	„	0 2 1
Boiled „ „ in drums	„	0 2 3
„ „ „ in pipes	„	0 2 2
„ „ „ in barrels	„	0 2 5
„ „ „ in drums	„	0 2 4
Turpentine in barrels	„	0 4 3
„ in drums	„	0 4 7
Genuine Ground English White Lead	per ton	26 0 0
Red Lead, Dry	„	24 10 0
Best Linseed Oil Putty	per cwt.	0 7 0
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.

	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 0
Fine Elastic Carriage	0 12 6
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 16 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flatting Varnish	0 18 0
White Copal Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 0
French and Brush Polish	0 10 0

TO CORRESPONDENTS.

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TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

BEACONSFIELD.—For the erection of two houses, stables, etc., Beaconsfield, Bucks., for Mr. Atkins. Messrs. Hooper & Nash, architects, High Wycombe:—

G. H. Gibson	£698	J. Nash & Sons, Wycombe*	£682
H. & E. Harris	697		

BRIGHTON.—For painting the Warren Farm schools, for the Guardians. Mr. G. Fage (engineer), for the workhouse, Mr. H. R. Spooner (superintendent), for Warren Farm schools:—

Saunders Bros.	£227 10	Olliver & Son	£150 0
J. J. Richards	175 0	C. Duke	150 0
Gates & Sons	170 0	J. & W. Simmonds, 2, Ashford-road, Brighton*	140 0
J. Scott Fenn	158 0		

BULWICK.—For widening bridge and raising the approach, for Northamptonshire County Council. Mr. C. S. Morris, County Surveyor, County Hall, Northampton:—

Hacksley Bros.	£283 0 0	H. Holloway	£191 17 6
Hinson & Co.	224 0 0	Siddons & Freeman, Oundle*	190 0 0
J. Patrick	201 0 0		
Goodman & Murkett	196 0 0		

CAMBORNE.—For repairs and additions to the Isolation Hospital, and for the erection of a mortuary, for the Urban District Council:—

E. S. Haslett	£297 10
H. Lean, Mount Pleasant-road, Camborne*	290 0

CARDIFF.—For enlargement of head post-office, Cardiff:—

		Cr.
Stephens, Bastow & Co., Ltd.	£13,550	£120
D. Davies & Son	13,370	220
W. Williams	13,092	51
E. Turner & Sons	12,316	271
J. Allan & Sons	12,302	200
W. E. Blake	11,280	160
W. King & Son*	11,090	140

CHESTERFIELD.—For painting, etc., for the Education Committee. Mr. W. C. Jackson, Architect, Chesterfield:—

Painting and colour-washing the interior of St. Thomas's school, Brampton.

J. B. Hall, Chesterfield*	£32 18
H. Dogson	24 10

Painting the exterior of the Education Offices in Foljambe-road.

J. B. Hall, Chesterfield*	£8 7

Painting the exterior of the Central school, Ashgate-road, and two caretakers' houses in Foljambe-road.

Eyre & Sons, Holywell-street, Chesterfield*	£54 15
J. H. Thompson	42 7

DORKING.—For 300 lineal yds. of 7-in. stoneware pipe sewer, etc., for the Rural District Council. Mr. W. Rapley, jun., engineer and surveyor, Clovelly, Towerhill, Dorking:—

A. C. Soan	£273 19 1	H. W. Wheeler	£192 11 1
J. Harrison	218 11 6	J. May	191 0 0
James & Co.	216 0 0	J. Avins	184 1 7
F. W. Trimm	216 0 0	R. W. Swaker, Whitton, Hounslow*	180 5 11
G. J. Arthur	212 9 10		
Cummins & Son	206 17 0		

FALKIRK.—For administrative block and porter's lodge at Fever Hospital. Mr. D. Ronald, Burgh Engineer, Burgh-buildings, Falkirk:—

Porter's Lodge.

Mason: R. Dalziel, Griffith-street, Falkirk	£228 19 4
Plaster and Roof and Tile: Drummond & Crowe, Laurieston	83 8 0
Plumber: R. Brown, Bank-street, Falkirk	94 3 6
Joiner: Gilchrist & Packman, Main-street, Camelon	163 9 0

Administrative Block.

Mason: J. Gardner, Neilson-street	405 7 10½
Plaster and Slater: J. Miller, Grahams-road	223 10 0
Plumber: G. Campbell, Main-street, Camelon	167 14 2
Joiner; J. Forgie, Silver Row	349 0 0

HAWARDEN.—For a service reservoir, for Hawarden and District Waterworks Co. Mr. W. Simmons, engineer, Buckley:—

J. Messan	£1,540 10 0	J. Wilson	£1,035 19 1
W. Mansfield & Co.	1,488 5 2	G. Wright & Son, Hawarden*	929 12 2
P. Edwards	1,053 11 9		
Fox & Parry	1,063 0 0		

HUMBERSTONE.—For erecting a Wesleyan chapel and school. Messrs. Gelder & Kitchen, architects, 120, Alfred Gelder-street, Hull:—

		If Joinery Work is Redwood.
J. G. Cocking	£1,614 5 6	£1,586 5 6
J. H. Thompson & Sons	1,393 11 6	1,375 0 0
W. Ion	1,463 9 4	1,370 9 4
W. Kirton	1,395 10 5	1,352 2 5
Hewing & Goodhaod	1,297 0 0	1,284 0 0
W. Gilbert	1,320 15 6	1,277 7 6
Holmes & Richardson	1,283 0 0	1,239 12 0
J. C. Allison	1,220 0 0	1,205 0 0
R. C. Kitching	1,260 0 0	1,202 10 0
T. Wilkinson	1,270 0 0	1,199 11 6
C. Sprakes & Sons	1,225 0 0	1,185 0 0
H. W. Parker & Son	1,129 0 0	1,110 0 0
J. Kime, Candlesby*	1,153 0 0	*1,076 0 0

HUNGERFORD.—For erecting a schoolroom and the renovation of the church, for the Trustees of the Primitive Methodist Trust Estate. Mr. Thos. Colborne, The Transfer, Swindon:—

Edwards & Son	£691 11	Hedges Bros., Newbury*	£628 0

ILFORD.—For erecting an elementary school for 1,230 children and for latrines, etc., Uphall-road, for the Urban District Council. Mr. C. J. Dawson, architect, 11, Cranbrook-road, Ilford:—

H. & E. Harris, Marlow-on-Thames* .. £15,080

INVERNESS.—For new halls, Bank-street, for the U.F. High Church. Messrs. Ross & Macbeth, architects, Queen's Gate Chambers, Inverness:—

Mason: W. Alexander & Co.	£1,959
Carpenter: P. Cameron	
Slater: A. C. Fraser	
Plumber: R. Black & Son	
Plasterer: W. Johnstone	
Rose-street Foundry Co., Ltd.	
Painter: S. Fraser	

[All of Inverness.]

LEEMING (Yorks.).—For additions to stores, for Oxenhope Industrial and Provident Society. Messrs. J. Haggas & Sons, architects, North-street, Keighley:—

Masons: Waddington Bros., Oxenhope	£320 9 2
Joiner: W. Wright, Oxenhope	
Slaters: T. Nelson & Sons, Springfield-place, Bradford	
Plasterer: G. Holmes, Oxenhope	
Plumber: B. Lambert, Haworth	
Painter: J. Bailey, Oxenhope	

LEWISHAM.—For a brick and concrete sewer in Sydenham-road, Sydenham, for the Lewisham Borough Council:—

E. Iles, jun., Wimbledon £5,559 10

LITTLEHAMPTON.—For fences, etc., at cemetery, for the Urban District Council. Mr. H. Howard, F.S.I., Town Offices:—

Snewin Bros., Littlehampton £267

LONDON.—For cleaning and painting works at the Western Fever Hospital, Seagrave-road, Fulham, S.W., for the Metropolitan Asylums Board. Mr. W. T. Hatch, Engineer-in-chief. Quantities by Messrs. J. R. Hunt & Co.:—

J. S. Henry, Ltd.	£3,540 7 3½	F. Kinnaird	£1,691 0 0
W. Hussey	2,207 0 0	Pasterfield & English	1,577 0 0
J. J. Richards	2,097 5 4	E. Proctor & Son	1,367 5 3
W. Rice & Sons	1,993 18 0	L. Kazak	1,247 13 10
A. H. Inns	1,915 0 0	Sabey & Son, Ltd.	1,217 0 0
G. McArthur & Co.	1,908 0 0	M. McCarthy	1,179 0 0
E. Burns	1,901 5 0	W. J. Negus, 19, Pocock-st., Blackfriars, S.E.*	1,044 2 9
T. Carr	1,898 0 0		
J. S. Fenn	1,843 0 0		
Vigor & Co.	1,718 0 0		

LONDON.—For heating, Dempsey-street School, Stepney, for the London County Council:—

J. Wontner-Smith, Gray, & Co.	£1,169 0	J. Defries & Sons, Ltd.	£861 0
Brightside Foundry & Engineering Co., Ltd.	899 0	Palowkar & Sons	837 0
C. P. Kinnell & Co., Ltd.	890 0	Stevens & Sons	823 0
Lea & Warren	869 0	G. & E. Bradley	798 10
		W. G. Cannon & Sons, Ltd., 107, London-road*	709 10

[The estimate of the Architect (Education), comparable with the tenders, is £745.]

LONDON.—For heating Franciscan-road School, Wandsworth, for the London County Council:—

J. Defries & Sons, Ltd.	£780 5
H. C. Price, Lea, & Co.	746 0
Palowkar & Sons	735 0
Wenham & Waters, Ltd.	721 0
C. P. Kinnell & Co., Ltd.	715 0
Stevens & Sons	714 0
Brightside Foundry & Engineering Co., Ltd.	703 0
G. & E. Bradley	645 10
W. G. Cannon & Sons, Ltd.	639 10
H. J. Cash & Co., Ltd., Caxton House, Westminster*	635 0

LONDON.—For heating the London County Council Technical Institute, section "A" (Art block), Hammersmith:—

R. Crittall & Co.	£1,595	J. & F. May	£1,566
Jones & Attwood	1,585	G. & E. Bradley	1,550
Moorwood, Sons & Co., Ltd.	1,580	J. Simpson & Co., Ltd. Grosvenor-road*	1,383

LONDON.—For electric lighting, etc., London Day Training College, Holborn, for the London County Council:—

Foote & Milne, Ltd.	£2,285 0 0
Barlow Bros. & Co.	2,027 0 0
Weston & Sons	1,981 0 0
F. A. Glover & Co.	1,950 0 0
Jackson Bros.	1,920 0 0
L. Sunderland & Co.	1,910 0 0
R. Brightwell	1,834 0 0
J. S. Cunnington & Co.	1,811 0 0
Ekins & Co., Ltd.	1,800 0 0
Lund Bros. & Co.	1,780 0 0
Sweet Bros.	1,680 0 0
Wippell Bros. & Row	1,670 0 0
Cowtan & Sons, Ltd.	1,597 0 0
Smeeton & Page	1,554 18 6
Vaughan & Cooke, Ltd.	1,500 0 0
Seth Bros.	1,462 0 0
A. W. Penrose & Co., Ltd.	1,440 0 0
T. Potter & Sons, Ltd.	1,432 0 0
Higgins & Griffiths	1,419 0 0
W. J. Fryer & Co.	1,397 0 0
W. Barton & Sons	1,375 8 0
Aberdeen Electrical Engineering Co., Ltd.	1,358 0 0
Lea & Warren	1,328 0 0
Reliance Electrical Co.	1,168 2 0
S. G. Cozens, 63, Queen Victoria-street*	1,154 0 0

[The estimate of the Chief Engineer, comparable with the tenders, is £1,420.]

LONDON.—For track rails, etc., for the London County Council:—

Steel, Peech, & Tozer, Ltd.	£18,213 2 6
P. & W. MacLellan, Ltd.	18,140 18 9
Lorain Steel Co.	17,056 10 0
Barrow Hæmatite Steel Co., Ltd.	16,731 17 6
W. Scott, Ltd.	16,570 0 0
Bolckow, Vaughan, & Co., Ltd., London*	16,173 17 6

[The Chief Engineer's estimate, comparable with the above tenders, is £16,194 17s. 6d.]

Slot Rails and Conductor Rails.

Steel, Peech, & Tozer, Ltd.	£6,985 12 6
Bolckow, Vaughan, & Co., Ltd.	6,972 10 0
W. Scott, Ltd.	6,237 10 0
Frodingham Iron & Steel Co., Ltd., near Doncaster*	5,804 10 0
P. & W. MacLellan, Ltd.	5,367 10 0

[The Chief Engineer's estimate, comparable with the above tenders, is £5,804 10s.]

MAIDSTONE.—For erecting an elementary school at the Cherry Orchard, Tonbridge-road, for the Education Committee. Mr. T. F. Bunting, Borough Surveyor, Fair Meadow, Maidstone:—

R. Corben and Co.	£7,697	Clark & Epps	£6,797 0
Barden & Head	7,270	E. Wallis & Sons, Ltd.	6,624 0
H. J. Smith & Son	7,237	W. F. Burrows*	6,370 13
Cox Bros.	6,990		
R. Avard	6,893		

[All of Maidstone.]

MANCHESTER.—For the erection of a residence in Oakfield-road, Didsbury, for Mr. J. Majdalany. Messrs. C. K. & T. C. Mayor, architects, 41, John Dalton-street, Manchester:—

Hill & Heys	£1,992	J. Ramsbottom	£1,879
Young, Tinker, & Young	1,926	W. Thorpe	1,864
G. Macfarlane & Son	1,909	S. Megarity & Co.	1,823
Peace & Norquoy	1,886	Burgess & Galt, Ardwick*	1,770

NEW MILLS.—For erecting a gas foreman's cottage at Mousley Bottom, for the Urban District Council:—
J. D. Swindells, Midland-terrace, New Mills* .. £410

SKYE.—For water supply works, Broadford, Skye, for the Skye District Committee of County Council of Invenessshire. Mr. J. A. H. Mackenzie, Architect and Surveyor, Portree. Quantities by architect:—

Supplying Pipes, etc.
Watson, Gow, & Co., Glasgow* } Schedules of Prices.
Reservoir, Pipe Trenches, Pipe Laying, etc.
H. Lapraik, Blantyre* }

SOUTHAMPTON.—For improvement works in Kingsley-road for the Corporation. Mr. J. A. Crowther, Borough Engineer:—

J. Douglas	£6 94 15 9	F. Osman, Southampton*	£660 0 0
Grounds & Newton	693 17 3		

SOUTHAMPTON.—For the construction of a storm water-sewer on the Polygon estate, for the Corporation. Mr. J. A. Crowther, Borough Engineer:—

Grounds & Newton	£130 19 1	R. Richards	£85 9 2
A. G. Osenton	124 9 5	F. Osman, Southampton*	77 0 0
J. Douglas	92 6 8		

STAMFORD.—For erecting a block of six cottages, Barnack-road, for Mr. S. S. Seccombe. Messrs. J. B. Corby & Son, architects and surveyors, 15, All Saints'-place, Stamford:—

J. Woolston	£1,090	W. Emerson	£975
Stretton & Sons	1,022	R. Scholes	960
J. Peasgood	1,010	E. E. Howes, Stamford*	899
J. Guttridge	980		

[Old buildings pulled down and re-used.]

STRATFORD-ON-AVON.—For erection of a mission chapel at Tiddington, near Stratford-on-Avon. Mr. A. Edward Allen, architect, 31a, Bridge-street, Banbury:—

J. G. Fincher & Co.	£600 0	E. T. Kennard, Stratford-on-Avon*	£496 15

SWINDON.—For making alterations at the "Carriers' Arms Inn," South Marston, near Swindon, for Messrs. R. B. Bowly & Co., Ltd. Messrs. Drew & Sons, architects, Regent-circus, Swindon:—

H. Looker	£255 10	H. & C. Spackman*	£224
Tydeman Bros.	230 0		

WAINFLEET ST. MARY'S.—For erecting a small farmhouse and outbuildings for Mr. W. H. Ganson. Mr. Butcher, architect, Spilsby:—

I. T. Turner & Sons	£334 10	W. Walker	£295 0
F. L. Shaw	329 10	S. Parker & Son Wainfleet*	294 0
F. Waite	303 0		

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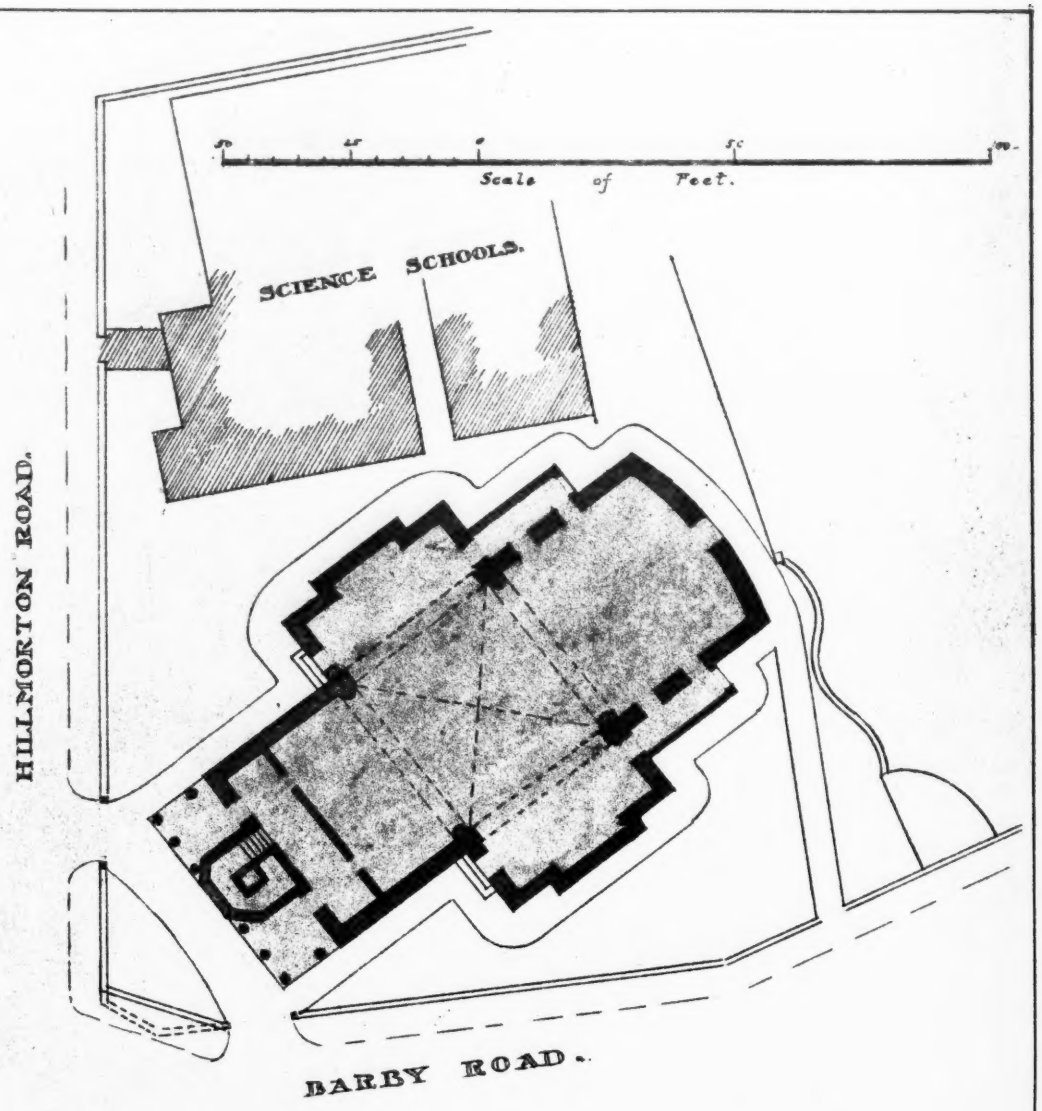

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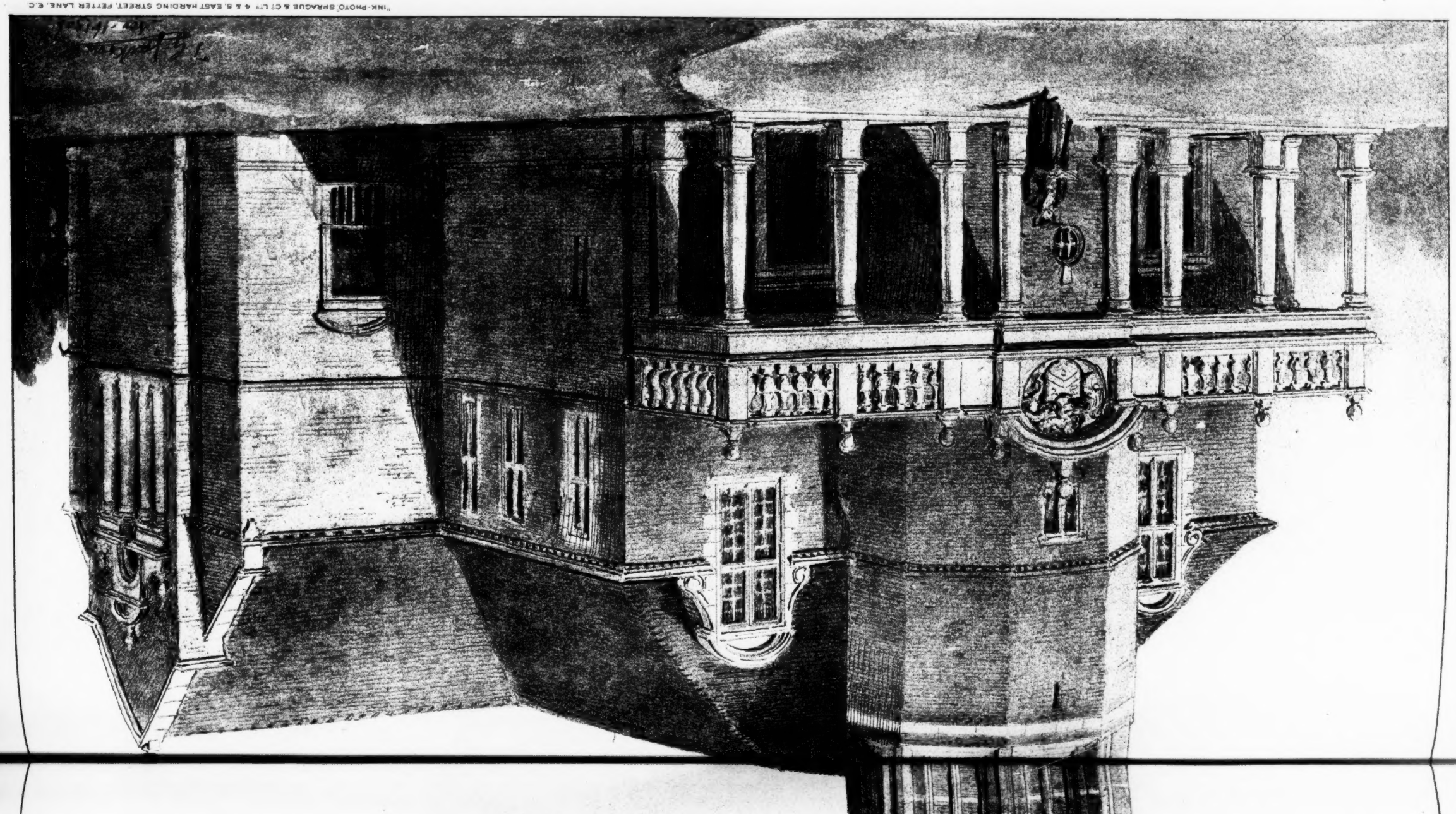
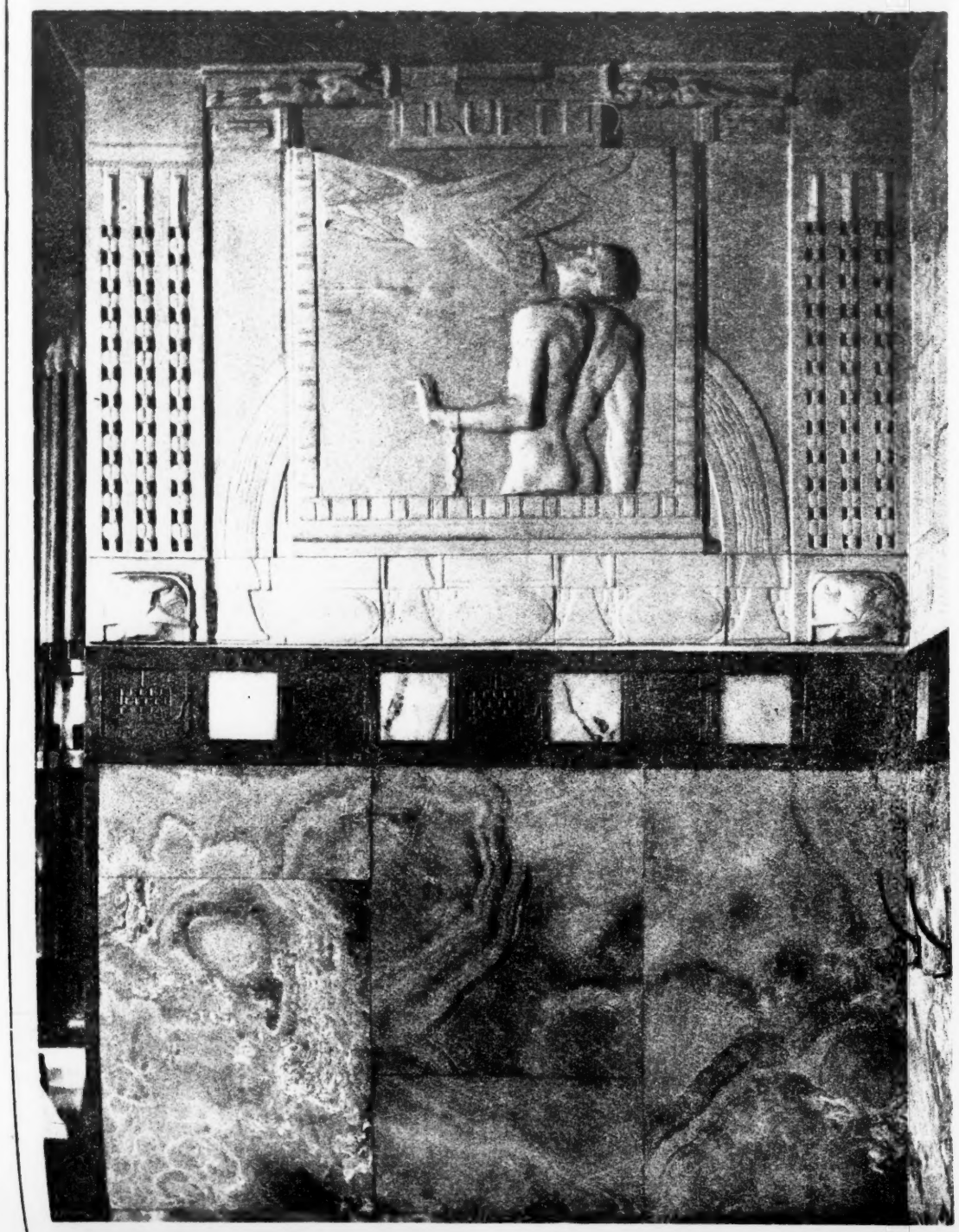
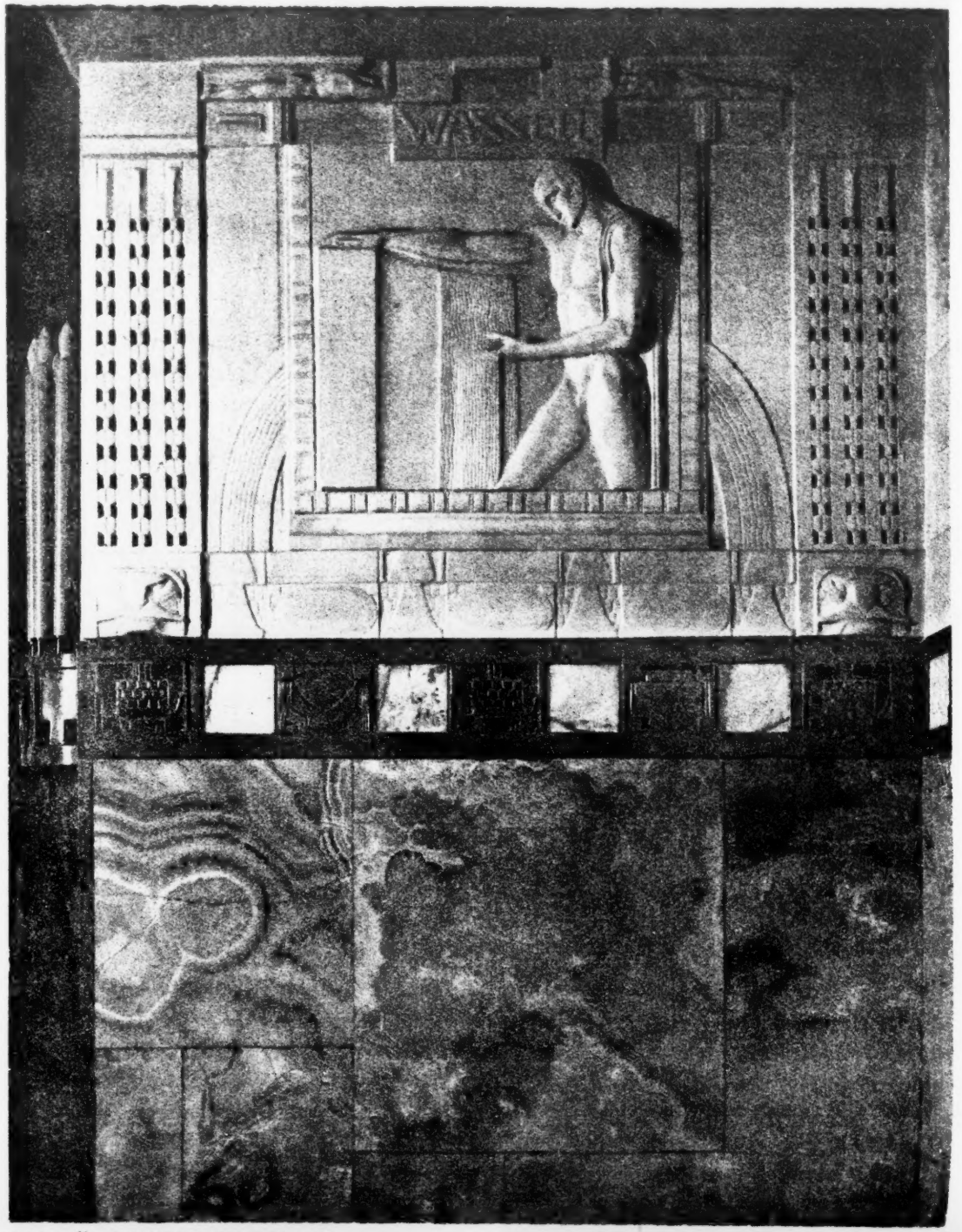
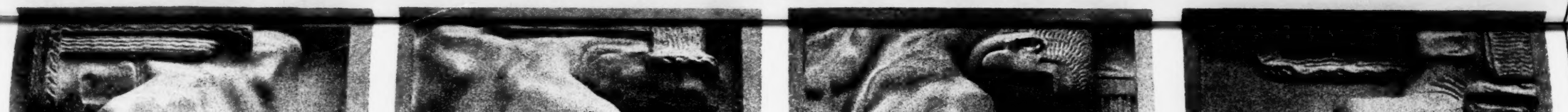


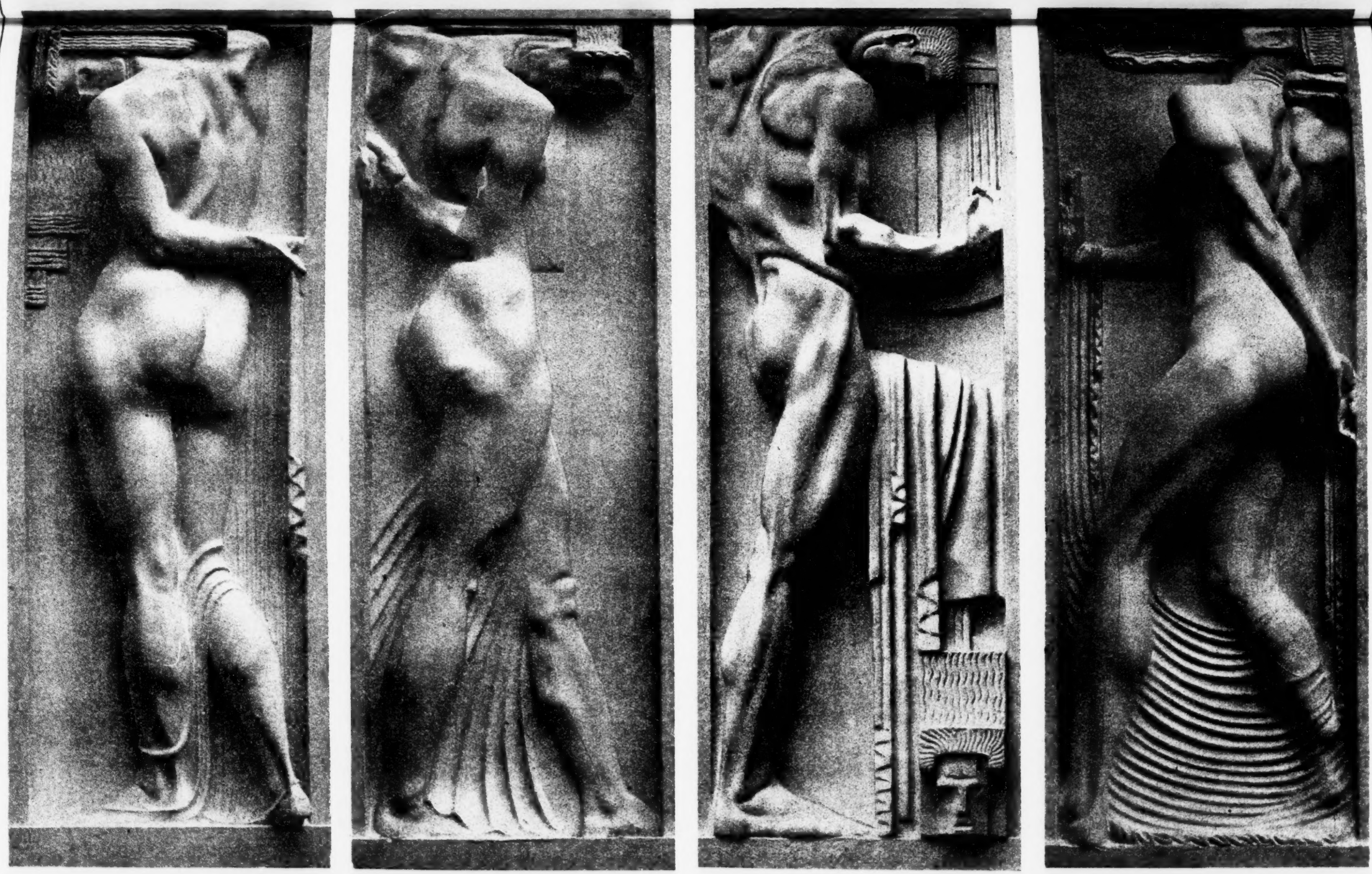




WALL DECORATIONS IN THE "ONYX-SAAL." BY HERR FEUERHAHN.



WALL DECORATIONS IN THE "ONYX-SAAL." BY HERR FEUERHAHN.



SCULPTURED PANELS IN THE FAÇADE. BY PROFESSOR METZNER.

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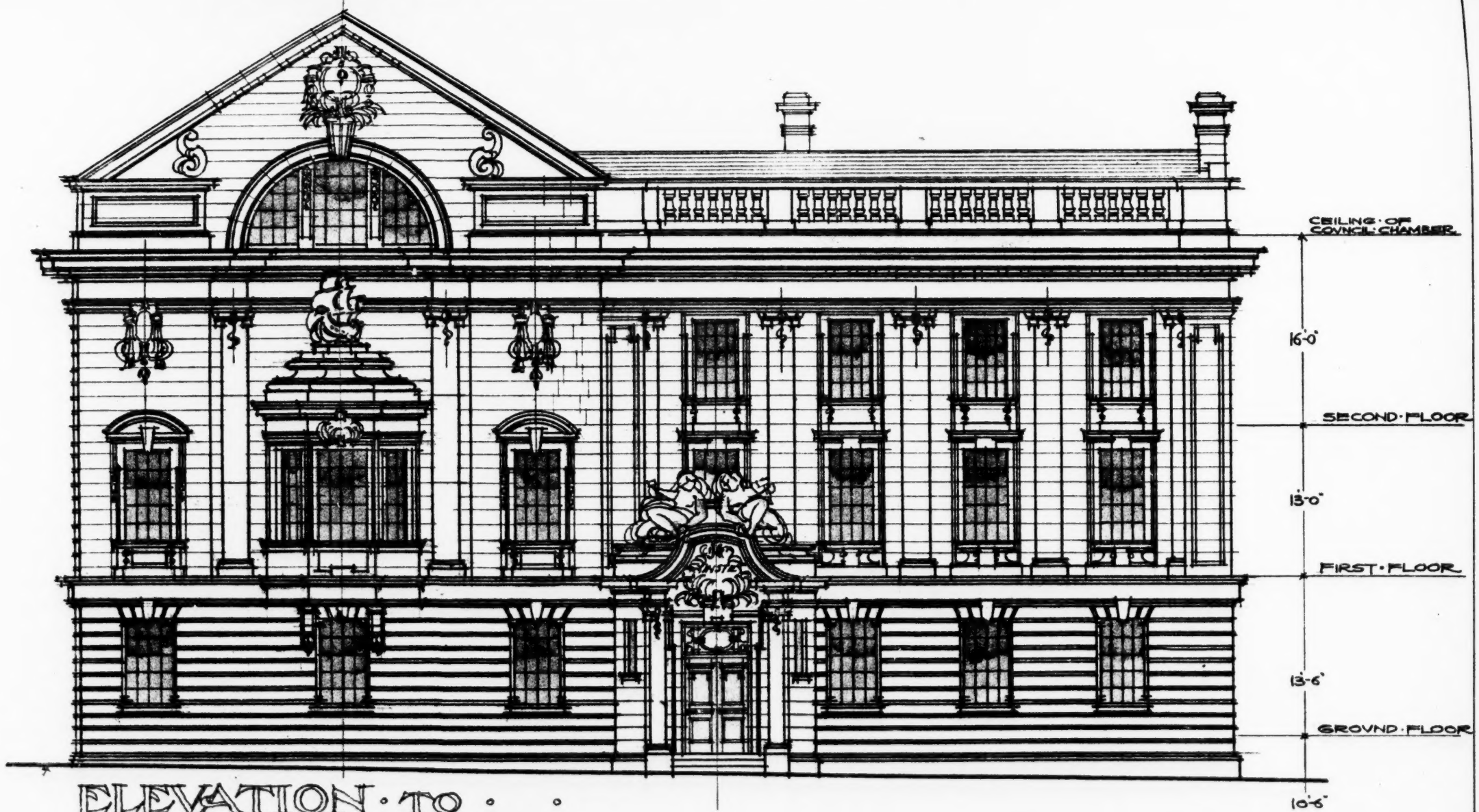
DECORATIONS OF THE "WEINHAUS RHEINGOLD," BERLIN.

(FROM *DEUTSCHE KUNST UND DEKORATION.*)

ELEVATION TO ELMBANK STREET.

ELEVATION · TO · ·
ELMBANK · STREET.



ELEVATION · TO · ·
ELMBANK · CRESCENT.

SCALE · OF 10 5 0 10 20 30 40 50 60 FEET.

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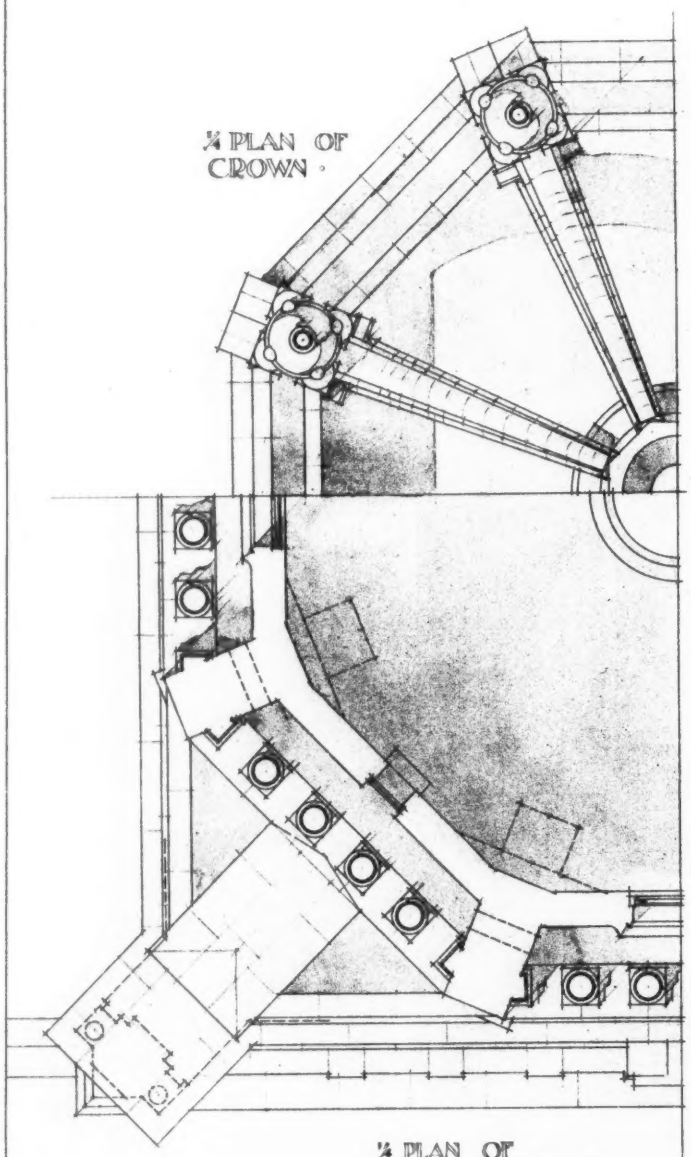
INSTITUTE OF ENGINEERS AND SHIP-BUILDERS, GLASGOW.—Mr. J. B. Wilson, A.R.I.B.A., Architect.

VICTORIA AND ALBERT MVSEVM.
DETAIL OF CENTRAL PORTION OF MAIN FRONT TO CROMWELL ROAD.

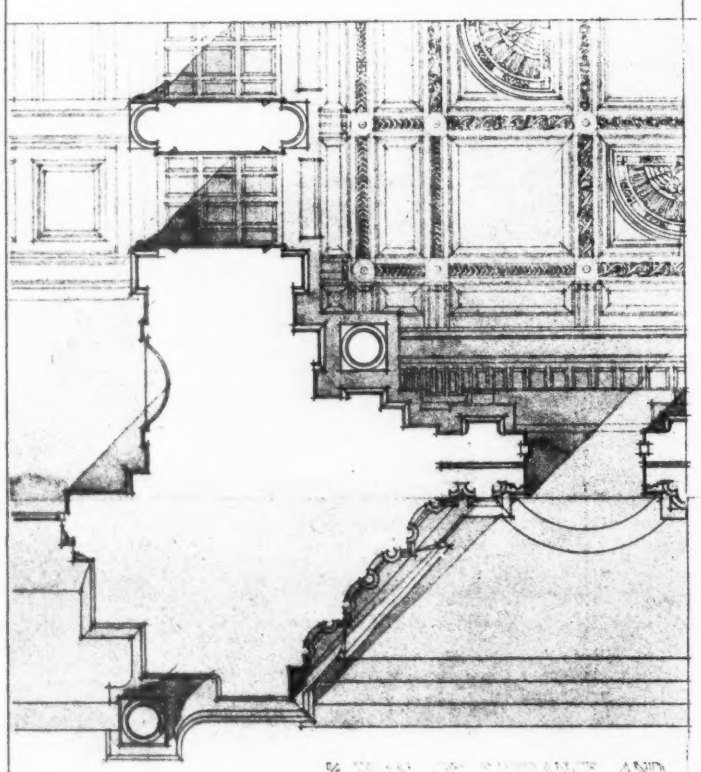
SCALE OF FEET.

SIR ASTON WEBB, R.A. ARCHITECT.

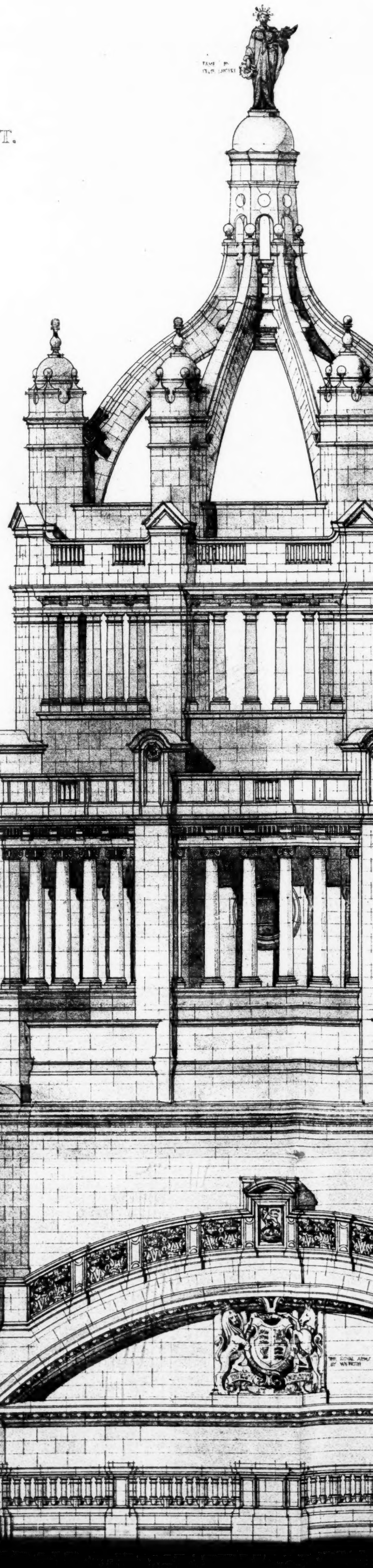


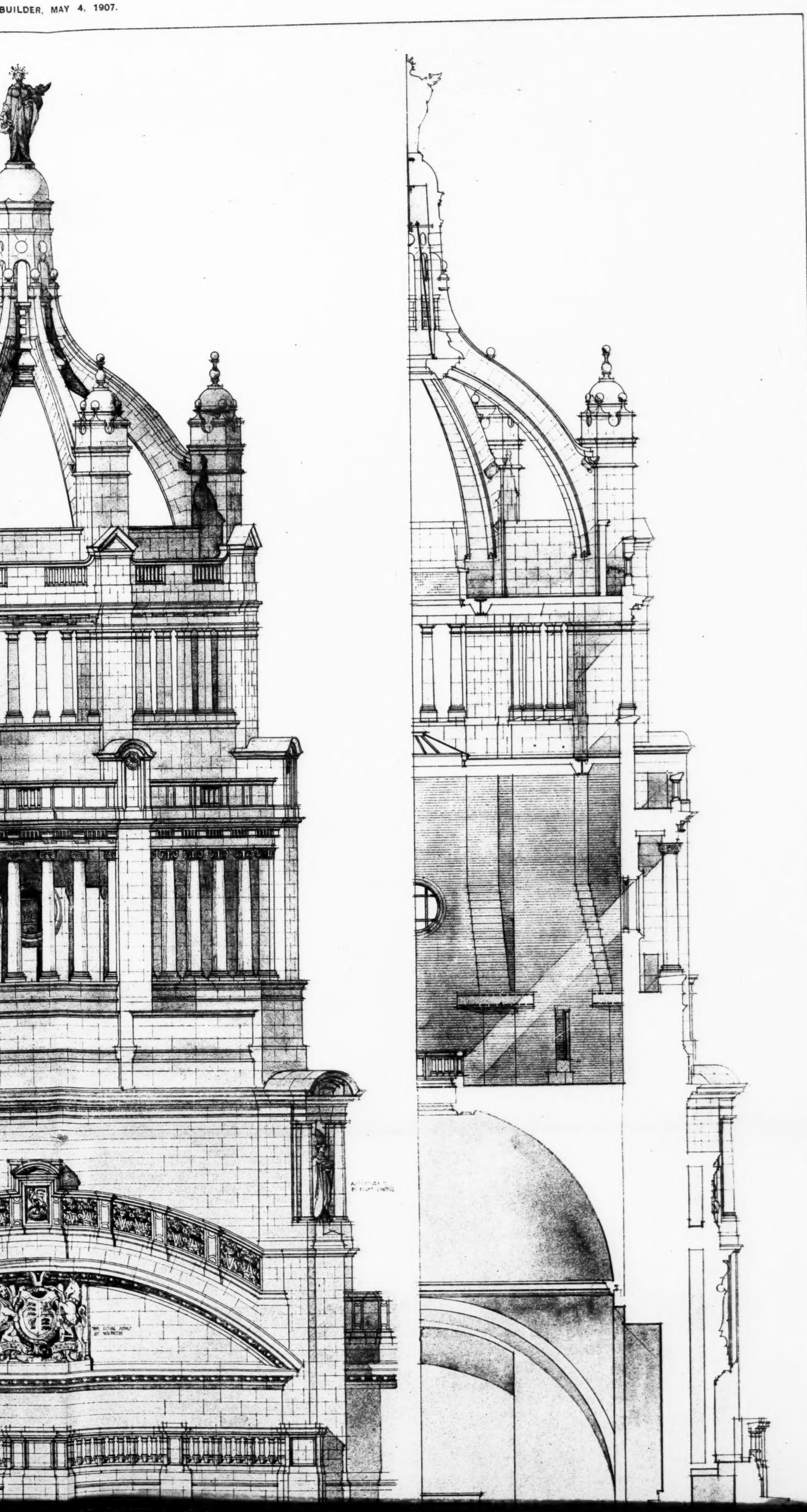
¼ PLAN OF CROWN.

¼ PLAN OF LOWER PERISTYLE.



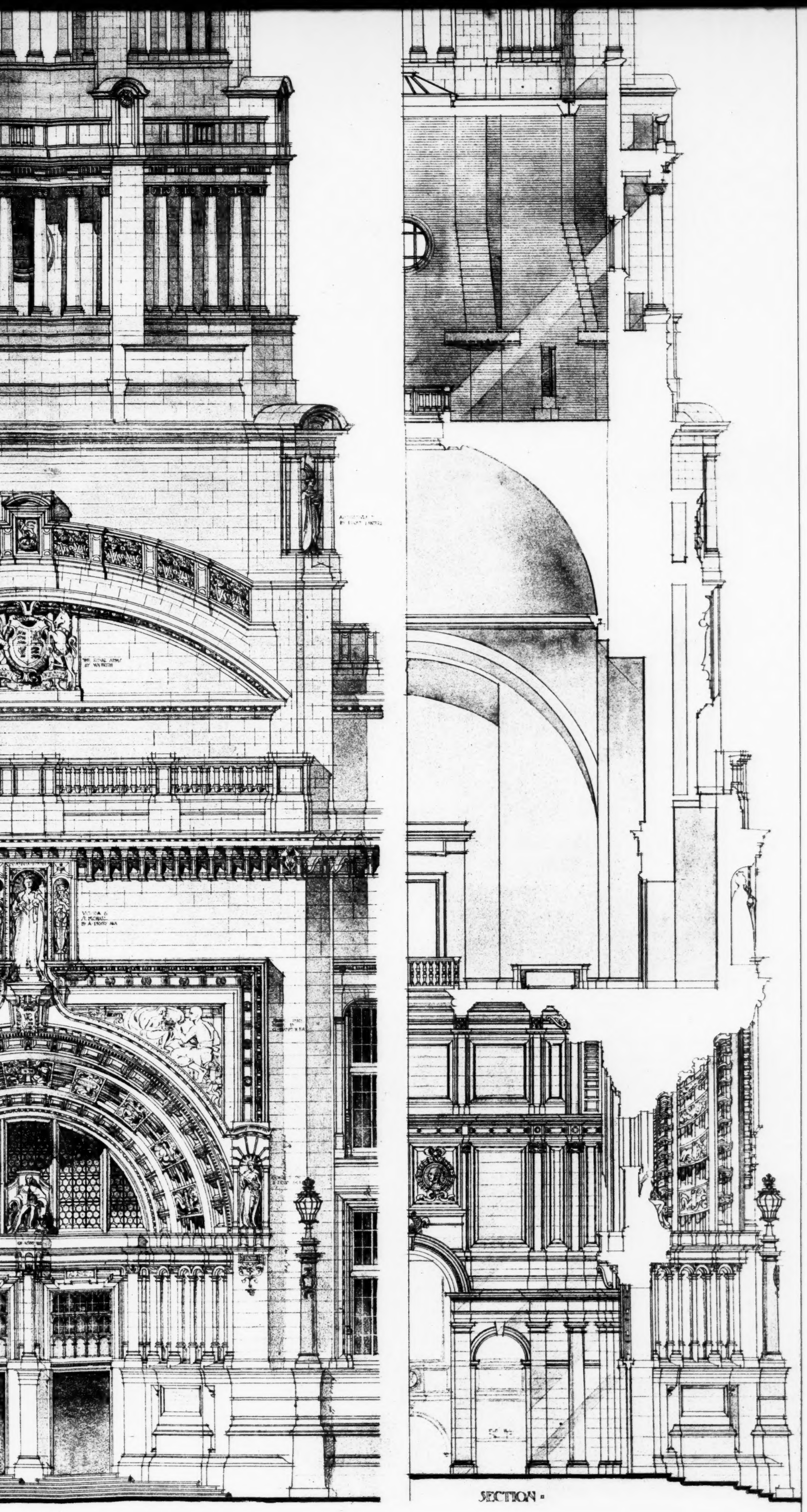
¼ PLAN OF ENTRANCE AND VESTIBULE, AND CEILING OVER.





¼ PLAN OF
LOWER PERISTYLE.

½ PLAN OF ENTRANCE AND
VESTIBULE, AND CEILING OVER.



SECTION ▪

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